April 2010

Exit Strategy Analysis to Add Value to Hessler's Neural Network

Madison R. Paulino
Worcester Polytechnic Institute

Melissa Pauline DeCelle
Worcester Polytechnic Institute

Exit Strategy Analysis to Add Value to Hessler's Neural Network

An Interactive Qualifying Project Report Submitted to the Faculty of the
Worcester Polytechnic Institute
In Partial Fulfillment of the Requirements for the Degree of Bachelor of Science

By

_____
Melissa Kuhn

_____
Madison Paulino

April 9, 2010
Approved by:

_____
Michael J. Radzicki, Advisor

Abstract

This project uses strategy based trading systems to test and evaluate which strategy generates the highest percent profits while also adding value to a well known existing method for buying and selling stocks. TradeStation software was used to compare the success of the various exit strategies using a twenty bar channel breakout entry. A N bar since entry and profit target exit strategy was determined to be the most successful of all strategies tested after the trading strategy was optimized for maximum profits. The results of the N bar since entry and profit target trading strategy were compared to Robert Hessler's neural network presented for daily stock picks on his public website shortterm.com. The group's was able to treat Hessler's neural network as a set-up instead of a full, complete system. By adding technical entry and exit rules, the group was able to generate superior results.

Acknowledgements

Throughout the project, the group has worked extensively with the project advisor, Michael J. Radzicki. The group would like to thank him for his advice and supervision throughout this project. The group would also like to thank Worcester Polytechnic Institute's Investment Club for their help and guidance on the project subject matter. With the help of these two parties, the group was able to successfully complete this project.

Table of Contents

Contents

Table of Figures

Table of Tables

Table of Equations

1 Introduction

The purpose of this IQP is to determine if a scientific trading strategy can add value to a well known existing method for buying and selling stocks. The group's objective through using a trading strategy is to have a higher percent profit than the grade "A" stock picks provided by Robert Hessler's on Shortterm.com through his neural network. The group tested and optimized eight different trading strategies in order to determine which strategy yielded the best results. The trading strategy titled "N Bar since Entry and Profit Target" had the best results of the eight strategies tested. The group used Robert Hessler's neural network as a filter for stock choice and created a better set of strategy components including entry and exit rules. Random samples of 20 grade "A" stock picks were selected from Hessler's historical data. The group has all of Hessler's historical data so a direct comparison of the results was conducted to see which method yielded better results. Hessler's neural net produced an average percent profit of 2.833%. The group's trading strategy, "N Bar since Entry and Profit Target," produced an average percent profit of 5.892%. The group found that using Hessler's neural net as a filter rather than a complete trading strategy will result in higher profits. This adds value to Hessler's neural network that provides free daily stock picks for next day swing trading to the public through the internet. The group found a way to improve the profits from the picks that Hessler provides.

Finding a trading strategy that adds value to a current method is important. After the stock market crash of 2001, there was a serious financial change in people's lives. The crash affected people's funds including retirement, college education, etc. People began to want and need control of their financial futures. The internet has allowed any normal citizen to be able to reach the market on their own. The internet has turned people away from offloading to financial

professionals for putting their money in the stock market and has allowed retail investors to become more active in the stock market. This project is targeted at retail investors. All results were determined using TradeStation software.

2 Background Research

2.1 The Stock Market

The stock market is one of the most essential sources for companies to raise money. The stock market allows businesses to be publicly traded, or raise additional capital for expansion by selling shares of ownership of the company in a public market (Kennon, 2007). Stocks are considered to be a liquid investment due to its ability to quickly and easily sell securities. The stocks are listed and traded through stock exchanges which unify buyers and sellers of the stock market and securities (Kennon, 2007). There are three main markets for trading stock in the United States including the New York Stock Exchange (NYSE), National Association of Securities Dealers (NASDAQ), and the American Stock Exchange (Amex).

The group chose to trade within the stock market because stocks typically have potential for higher returns over long term durations in comparison to other investment methods. Another benefit of trading stocks is that stocks are able to pay dividends which have the capability to compensate for a drop in share price and also provide extra income (Articlesbase, 2007). One major concern investors have in investing in the stock market is that there is no guaranteed return on their stocks. However, the group felt that with a proper trading strategy, the group would on average reduce this risk and end with profits.

2.2 Robert Hessler's Shortterm.com

Robert Hessler uses a neural network to generate free daily stock picks for next day swing trading. Each evening after market close, the neural net searches a database of stocks for

potential trades (Hessler, 1996). The neural net finds between 0 and 200 stock picks which appear to be moving upward (Hessler, 1996). The neural net used by Hessler has the ability to identify buying opportunities, not create them. It has the ability to look at the attributes of individual stocks and the market. The average position is closed out in 7 market days with winners averaging less and losers averaging more (Hessler, 1996). The buy and sell recommendations are posted around 7PM Eastern Time each evening for next morning execution (Hessler, 1996).The stock picks are graded on a letter system "A", "B", "C", "D" or "E". The stock picks that the neural net believes will outperform others are given an "A" and those that will not do as well are given an "E." The free page that Hessler provides to the public does not provide the rating information until the trade is closed.

2.3 TradeStation

This project focuses in particular on developing a trading strategy for stock picks off of Hessler's neural net on ShortTerm.com. The platform that the team used to develop their trading strategy was TradeStation. The Trade Station software allows users to input entry and exit rules into the software to allow for analysis based on historical and real time data. The software allows for the creation, modification, and optimization of a strategy based trading system for various types of investments (TradeStation, 2001). TradeStation has a stock screening function that can be used to identify stocks that meet the criteria required by a particular trading system (TradeStation, 2001). The group will not use this screening function because Hessler's picks will act as the scanner to provide stocks to trade and test. Strategies are inserted into TradeStation with EasyLanguage. EasyLanguage is used to create custom indicators for financial charts and also to create algorithmic trading strategies for the markets (TradeStation, 2001). Important trading tools can be written using EasyLanguage in TradeStation including strategies, scanners,

indicators, etc. The group used EasyLanguage for all entry and exit strategies. The TradeStation was particularly important when the trading strategy was optimized. Once a trading strategy is written through EasyLanguage, TradeStation can optimize the strategy for a specific stock. The optimization tool will test a range of values for the desired variable to determine which combination will result in the most successful system for a particular stock.

2.4 Developing a Trading System

A trading system is a group of specific rules that determine entry and exit points for a given market. Before a trading system can be designed, the trader must make decisions on the type or types of investments to make, the length of the investment and the amount of the investment. The group utilized TradeStation to create a trading strategy to obtain results that were compared to Robert Hessler's based on historical data. One advantage of a trading system is that it takes some of the emotion out of trading. Investors will sometimes let their emotions get the best of them and lose money or question their decisions (Kennon, 2007). If an investor uses a pre-developed system with rules, traders can cut down on human inefficiencies and increase profits (Salcedo, 2007). Using a trading system allows the trader to scientifically create a strategy and can also analyze historical data. When developing a trading system, it is imperative to follow rules to guide your trading decisions. Following the rules of a trading system also provide the user with discipline in their trading decisions. A trading system is can be very useful and beneficial for traders if designed correctly. Trading systems have the ability to eliminate guesswork, confusion, fear, and greed (Wang, 2009). They also provide a road map for the trader to follow as well as risk control and money management (Wang, 2009).

2.5 Charlie Wright on Trading Strategies

Charlie Wright (1998) provides insight on strategy trading by supplying both the philosophy behind strategy trading and a solid foundation for developing trading strategies. The basis of the group's trading strategy was developed off of key points introduced by Charlie Wright. For example, when developing a trading strategy, it is important to not try and predict the future, for no one knows where the market is doing and no one knows when the market will move (Wright, 1998). Many believe that market is random, hence why the group chose to use exit rules rather than focus on entry rules. It is also important for traders to understand that it is important to obey the rules created within your strategy and traders must have trading discipline (Wright, 1998). If a trader can develop trading discipline within their trading strategy, the trader will be able to understand that there is no use in trying to fight the market, rather one needs to be in harmony with the market (Wright, 1998). If a trader is able to stick to his or her trading strategy, the randomness of the market will not tell you what to do and when.

There is also a psychological aspect of the market that must be taken into account. Traders must be understand the psychological keys of trading and be able to accept losses as a cost of doing business. Even the most successful investors do not have superior performance numbers as measured by metrics such as percent of trades that are winners, but there will be profit over time if a trader is able to stay disciplined. It must be understood that the market will leave you with losses and profits (Wright, 1998). The trader must also be able to overcome the emotional struggle when the stock is not doing well; the trader must give the trading strategy enough time to work. Another important aspect for traders to understand is the importance of using historical statistics in trading strategies. Wright explains the importance of understanding

that traders don't profit from their predictions (Wright, 1998). They profit from sound cash management and risk control (Sopata, 2004). Traders must have a healthy time horizon in order to trade for profits overtime. The purpose of creating a trading strategy is to let the market and strategy determine the profits. All of the suggestions given by Charlie Wright were implemented in the group's developed trading strategy. Due to the randomness of the market, the group focused on exit rules. Within the trading strategy, historical data is analyzed using the Trade Station software.

2.6 Entry Rule

After Hessler's site was utilized as a filter to determine which stocks to test, a common entry strategy was used. This entry strategy was different that Hessler's. The entry strategy was a twenty bar channel breakout system. Channel breakout strategies are commonly used and relatively successful in trend following trading systems (Bryant, 2007). The setup for this strategy is fulfilled when the current bar reaches the highest high of the last twenty bars. The rule triggers a buy when the current bar is higher than the highest high of the last twenty bars plus one point. This strategy also sells short at the lowest low of the last twenty bars minus one point. It is important to note that the ChanLen changes when the trading strategy is optimized.

2.7 Exit Rules:

Many believe that most stock market action is random (Fama, 1972). For this reason, the group chose to focus more on exit rules rather than entry rules for the trading strategy. With the substantial amount of noise seen in the market, a large number of entry signals may be

misleading and wrong (Bryant, 2007). The trading strategy that produced the best results used the combination of N Bar since Entry and Profit Target (NBFE&PT) exit rules.

2.8 Trading Strategies

The group tested eight different trading strategies to see which yielded the highest profits that were greater than those from Hessler's neural net. The eight trading strategies that were tested included: Money Management Stop and Profit Target (MMS&T), Money Management Stop With Moving Average (MMSWM), Money Management Stop With RSI (MMSWRSI), Money Management Stop With a Trailing Stop (MMSWT), N Bar Since Entry With Moving Average (NBWMA), N Bar Since Entry With RSI (NBWRSI), N Bar Since Entry With a Trailing Stop (NBWT), and N Bar Since Entry and Profit Target (NBFE&PT).

2.9 Money Management Stop and Profit Target (MMS&T)

Money Management Stop is a commonly used exit type that uses stop orders to limit the risk of a trade (Bryant, 2007). A buy stop order is placed above the entry price for a short trade. A sell stop order is placed below the entry price for a long trade (Bryant, 2007). When the stop order is reached, this exit strategy limits the loss to the size of the stop plus slippage. Common methods on which to base the size of the stop include a fixed dollar amount, a fraction of the average true range, or as a percentage of prices (Bryant, 2007).

The goal of any trading strategy is to generate profits. The money management aspect of the trading strategy causes the strategy to either exit with a profit or exit with a loss. This allows profits to grow and cut losses short. Instead of waiting for a losing trade to become profitable,

exiting with a loss will use a stop loss which will limit the amount lost in losing trades. A stop loss can be determined by the maximum amount of money the investor is willing to risk for a given trade (Wright, 1998). A losing trade can also occur when an indicator shows that another trade is more likely to be profitable than the current trade (Wright, 1998).

The profit target represents a profit for the trade by using limit orders to exit when a specified price has been reached (Bryant, 2007). For a long trade, the limit order is above the market; for a short trade, it's below the market. A profit target can help avoid giving back open profits when the market reverses (Bryant, 2007). However, profit targets also place a limit on the maximum profit that's possible from a trade (Bryant, 2007). For a buy limit order to occur the price must be below the current market price (Wright, 1998). For a sell limit order to occur the price must be above the current market price (Wright, 1998).

2.10 Money Management Stop with Moving Average (MMSWM)

Money Management Stop exit type is used again but is now combined with moving average. By adding the moving average exit type, the strategy exited long when close was below moving average of the last 20 closes and exits short when the close was above the moving average of the last 20 closes (Bryant, 2007).

2.11 Money Management Stop with RSI (MMSWRSI)

Management Stop exit type is used again but is now combined with the Relative Strength Index (RSI). The RSI compares the magnitude of a stock's recent gains to the magnitude of its recent losses (Bryant, 2007). The RSI then turns that information into a number that ranges from

0 to 100. RSI has been broken down into its basic components: RS, Average Gain and Average Loss. This RSI calculation is based on a single parameter of 14 periods (Wilder, 1978). Losses are expressed as positive values, not negative values. The very first calculations for average gain and average loss are simple 14 period averages as seen in Equations 1 through 4 (Wilder, 1978).

Equation 1: Calculations for Average Gain and Average Loss (Bryant, 2007).

$$\text{First Average Gain} = \text{Total of Gains during the past 14 periods} / 14.$$

$$\text{First Average Loss} = \text{Total of Losses during the past 14 periods} / 14.$$

Equation 2: Calculations Based on Prior Averages and Current Gain Loss (Bryant, 2007).

$$\text{Average Loss} = [(\text{previous Average Loss}) \times 13 + \text{current Loss}] / 14.$$

$$\text{Average Gain} = [(\text{previous Average Gain}) \times 13 + \text{current Gain}] / 14.$$

Equation 3: Equation for RSI (Bryant, 2007).

$$RSI = 100 - \frac{100}{1 + RS}$$

Equation 4: Equation for RS (Bryant, 2007).

$$RS = \text{Average Gain} / \text{Average Loss}$$

An RSI is an oscillator. A long trend trade might be exited when an oscillator crosses below the over-bought level, indicating the end of an up-trend (Bryant, 2007). On the other hand, if the trade has been entered on weakness, such as a pull-back, a short-term trade might be exited when the oscillator crosses above the over-bought level (Bryant, 2007).

2.12 Money Management Stop with a Trailing Stop (MMSWT)

Management Stop exit type is used again but is now combined with a Trailing Stop. A trailing stop is an exit type that uses stop orders to hold onto a percentage of the open profit after a specified level of the open profit has been reached (Bryant, 2007). A trailing stop is an exit type that uses stop orders to hold onto a percentage of the open profit after a specified level of the open profit has been reached (Bryant, 2007).

2.13 N Bar since Entry with Moving Average (NBWMA)

N Bar since entry tells the strategy that an exit will occur at a predetermined number of bars since the bar of entry, where N can be any number greater than zero (Bryant, 2007). A moving average is the average of the price values calculated continuously as the stock price changes. A moving average is simply the average of a series of numbers over a period of time which is constantly updated by dropping the oldest value and then adding the newest value and recalculating the average (Michael, 2004).

2.14 N Bar since Entry with RSI (NBWRSI)

The next exit strategy is the N Bar since Entry with RSI. N Bars from Entry. N Bar since entry tells the strategy that an exit will occur at a predetermined number of bars since the bar of entry, where N can be any number greater than zero (Bryant, 2007). The RSI compares the magnitude of a stock's recent gains to the magnitude of its recent losses (Bryant, 2007) as seen in Section 2.11.

2.15 N Bar since Entry with a Trailing Stop (NBWT)

The following exit rule that was tested was the N Bar since Entry with a Trailing Stop. N Bar since entry tells the strategy that an exit will occur at a predetermined number of bars since the bar of entry, where N can be any number greater than zero (Bryant, 2007). A trailing stop is an exit type that uses stop orders to hold onto a percentage of the open profit after a specified level of the open profit has been reached (Bryant, 2007).

2.16 N Bar since Entry and Profit Target (NBFE&PT)

The final exit rule that was tested was the N Bar since Entry and Profit Target. N Bar since entry tells the strategy that an exit will occur at a predetermined number of bars since the bar of entry, where N can be any number greater than zero (Bryant, 2007). The profit target represents a profit for the trade by using limit orders to exit when a specified price has been reached (Bryant, 2007). For a long trade, the limit order is above the market; for a short trade, it's below the market. A profit target can help avoid giving back open profits when the market reverses (Bryant, 2007). However, profit targets also place a limit on the maximum profit that's

possible from a trade (Bryant, 2007). For a buy limit order to occur the price must be below the current market price (Wright, 1998). For a sell limit order to occur the price must be above the current market price (Wright, 1998). This exit rule along with the twenty bar channel breakout system produced the best results yielding the highest profits that outdid Hessler's neural net results.

3 Procedure

The group used Shortterm.com to gather historical data on grade "A" stock picks that would be used as a filter for the trading strategy. The historical data included stock picks from 1996 to 2010. The group imported the data into excel. The data displayed in the grade "A" stock picks included trade number, type, ticker, buy date, buy price, sell data, sell price, % profit, % loss, and days in. The group imported the data from the symbol column into excel. The group then randomly selected twenty tickers to test. The tickers that were chosen include: Goldman Sachs Group Inc (GS), Ingram Micro Inc. (IM), Convergys Corporation (CVG), UnitedHealth Group, Inc. (UNH), Avid Technology Inc. (AVID), Exelon Corp. (EXC), General Mills Inc. (GIS), Hawaiian Electric Industries Inc. (HE), International Flavors & Fragrances Inc. (IFF), Vertex Pharmaceuticals Incorporated (VRTX), Gentex Corp. (GNTX), Intersil Corporation (ISIL), Polo Ralph Lauren Corp. (RL), KLA-Tencor Corporation (KLAC), Cymer Inc. (CYMI), California Pizza Kitchen Inc. (CPKI), Mattel Inc. (MAT), Hovnanian Enterprises Inc. (HOV), and DR Horton Inc. (DHI).

Once the stocks were filtered, the group could begin testing. There were eight different strategies that were tested. All eight strategies used the same entry rule. Entry rules essentially determine the frequency of trading (Wang, 2009). The EasyLanguage code that was put into TradeStation for this entry rule is seen below:

```
Buy next bar at Highest (H, ChanLen) + 1 point stop;
```

The entry rule served as the trigger for when to buy the stock. Therefore the trading strategy will not necessarily enter the market at the same time as Hessler's neural net because the strategy must be triggered first.

The group tested the eight different trading strategies to see which yielded the highest profits that were greater than those from Hessler's neural net. As previously stated, the eight trading strategies were MMS&T, MMSWM, MMSWRS, MMSWT, NBFE&PT, NBWMA, NBWRSI, and NBWT. EasyLanguage programming was used to write a code for each of these trading strategies that were used in TradeStation. The EasyLanguage code for the seven strategies that did not produce the best results can be seen in Appendix A.

The EasyLanguage for "Exit at N bars since entry + Profit Target" (Bryant, 2007) is seen below. This trading strategy generated the highest profits while adding value to Hessler's neural net.

```
Inputs:  ChanLen    (20),
NBEnt       (20),
FrATR       (1.0),
MALen       (20);
Var:     ATR        (0),
MarkPos     (0),
TrailOn     (FALSE);
ATR = Average(TrueRange, 20);
MarkPos = MarketPosition;

Buy next bar at Highest(H, ChanLen) + 1 point stop;
```

Comment: This is telling the program to buy at the highest value of the previous 20 bars plus 1.

```
Sell short next bar at Lowest(L, ChanLen) - 1 point stop;
```

Comment: This is telling the program to sell short if the price at moment is lower than the previous 20 bars minus 1.

```
If MarkPos<> 0 and MarkPos<>MarkPos[1] then
TrailOn = FALSE;   { Trade entered this bar so reset trail flag}
{ Exit at N bars since entry }
```

Comment: This tells the program to indicate if the market position is changing.

```
If MarketPosition = 1 and BarsSinceEntry = NBEnt then
Sell next bar at market;
```

Comment: If the market is at one point and the bar since entry is equal to the highest of the previous 20 bars, then sell.

```
If MarketPosition = -1 and BarsSinceEntry = NBEnt then
Buy to cover next bar at market;
{ Exit at a profit target }
```

Comment: If the market is at one point and the bar since entry is equal to the lowest of the previous 20 bars, then buy.

```
If MarketPosition = 1 then
Sell next bar at EntryPrice + FrATR * ATR limit;
```

Comment: If the entry price plus the current profit is equal to the desired profit, then sell.

```
If MarketPosition = -1 then
Buy to cover next bar at EntryPrice - FrATR * ATR limit;
```

Comment: If the entry price minus the current losses is below the allowed loss, then buy.

Once Hessler's page filtered stock picks and the trading strategies were put into TradeStation, each strategy was tested in TradeStation. Data was collected over the dates that Hessler's historical data provided. These dates are the buy and sell dates provided by Hessler. The settings are changed to 5 minute bars. All of the trading strategies were written using EasyLanguage in TradeStation so they were easily accessible for testing in TradeStation.Once the trading strategy is ran, results were produced along with the 'Strategy Performance Report' to examine the total net profit of the trading strategy prior to optimization.

All of these trading strategies needed to be optimized in order to get the best results. The optimization function in TradeStation does all of the work for the user and tells the user which numbers produce the best results. The trading strategy was then optimized for new results and a new 'Strategy Performance Report' was produced. In all cases, the total net profit increased when the strategy was optimized. When optimization is performed, TradeStation takes every parameter and uses all the possible combinations to find the best combination for the best results. Since only four parameters are used, this is an ideal optimization tool.

4 Results

The trading strategy that proved to be most successful was NBFE&PT. This trading strategy had stop and loss. The strategy buys most of the time when the stock is going up and sells when the stock is going down . Hessler's neural net did not take advantage when the stock reached its peak maximum like our strategy does and this is why the group's trading strategy performed better than Hessler's neural net.

4.1 Prior to Optimization

Before the final results were obtained, the group tested eight trading strategies using twenty random grade "A" stock picks from Hessler's neural net. The trading strategies were initially tested prior to optimization to obtain results. The results were not favorable as seen below in Table 1. The trading strategy prior to optimization with the highest percent profit was MMSWRSI. However, further testing needed to be conducted in order to get the best possible results and find which trading strategy is the most effective.

Table 1: Percent Profits of Trading Strategies of the 20 Random Samples before Optimization.

	%PROFIT							
TICKER	%MMS&T	%MMSWMA	%MMSWRSI	%MMSWT	%NBFE&PT	%NBWMA	%NBWRSI	%NBWT
GS	0.11	4.85	1.52	2.95	5.05	5.92	3.54	5.20
IM	4.70	0.17	1.18	3.30	5.26	1.68	2.52	5.99
BEN	2.85	2.44	2.80	1.40	0.58	4.02	2.31	0.63
CVG	1.80	3.05	5.66	2.33	0.81	2.60	2.51	2.78
UNH	8.17	7.31	8.93	5.46	11.28	9.87	10.99	9.26
AVID	0.69	0.78	1.18	1.37	0.39	0.49	0.88	4.31
EXC	0.95	1.88	0.93	1.74	1.59	1.06	1.96	2.09
GIS	1.11	0.12	0.07	0.65	1.42	0.53	1.02	0.22
HE	0.91	2.90	0.14	0.73	1.09	2.59	0.54	0.59
IFF	0.73	2.90	2.94	3.14	4.01	2.97	4.21	4.87
VRTX	6.95	8.53	8.12	8.36	8.77	6.06	8.89	5.94
GNTX	1.31	3.02	4.73	5.19	4.16	1.20	3.70	4.44
ISIL	1.51	0.46	1.71	0.54	2.76	1.25	5.52	3.01
RL	4.05	1.10	2.38	6.56	5.18	0.91	3.01	0.45
KLAC	0.61	0.58	0.76	1.40	1.55	2.21	0.74	2.59
CYMI	1.67	0.60	3.47	1.76	2.08	0.90	4.70	2.27
CPKI	0.41	0.71	0.07	0.41	1.19	1.00	1.30	1.37
MAT	3.18	1.54	0.97	2.25	3.64	2.20	0.77	1.49
HOV	1.04	0.95	0.07	2.01	2.58	0.32	2.35	2.21
DHI	0.48	3.37	0.27	0.41	2.89	2.13	1.62	1.99
AVERAGE	**0.53**	**0.11**	**0.81**	**0.54**	**0.54**	**0.16**	**0.50**	**0.14**

4.2 After Optimization

Once these trading strategies were optimized, the results were favorable. The NBFE&PT generated the highest percent profits of all trading strategies tested as seen below in Table 2. Table 2 exemplifies the benefit in using the optimized results over the initial results for the winning strategy, NBFE&PT.

Table 2: Percent Profit of the Eight Trading Strategies after Optimization.

	%OPTIMIZE PROFIT							
TICKER	**%MMS&T**	**%MMSWMA**	**%MMSWRSI**	**%MMSWT**	**%NBFE&PT**	**%NBWMA**	**%NBWRSI**	**%NBWT**
GS	3.59	3.31	4.38	0.60	7.25	2.77	7.23	2.61
IM	11.93	10.47	11.48	10.75	16.80	11.20	13.61	12.93
BEN	9.50	11.00	10.33	11.60	9.10	10.93	10.10	11.40
CVG	5.03	6.46	8.35	4.13	11.04	7.27	12.57	7.45
UNH	8.39	7.63	9.26	7.38	11.36	10.49	11.10	10.02
AVID	0.49	0.20	2.35	0.69	3.82	1.18	2.35	0.10
EXC	0.04	0.64	0.08	0.74	0.45	0.62	0.41	0.93
GIS	0.34	1.07	0.87	0.92	1.71	0.60	1.26	0.58
HE	0.41	1.18	1.45	0.54	1.45	1.41	1.95	1.00
IFF	0.45	0.83	0.48	1.35	0.35	0.66	0.03	0.21
VRTX	1.37	3.19	3.56	1.01	1.01	3.60	2.06	0.97
GNTX	6.04	5.70	6.89	6.78	7.24	6.15	7.12	7.29
ISIL	5.98	3.55	5.14	3.64	6.78	4.22	5.94	4.31
RL	9.21	12.67	9.24	11.83	8.94	12.63	9.11	11.72
KLAC	2.16	1.58	1.70	3.10	3.59	0.33	3.74	2.26
CYMI	9.77	12.01	11.85	10.65	12.15	13.08	13.98	11.80
CPKI	3.67	2.67	3.56	3.38	4.71	2.34	3.75	2.90
MAT	1.08	2.20	2.87	1.64	1.18	1.18	3.13	1.90
HOV	1.41	2.05	1.34	2.63	3.85	1.91	3.27	2.81
DHI	0.17	3.61	0.52	2.68	5.09	3.13	3.95	4.81
AVERAGE	**3.86**	**4.02**	**4.37**	**3.92**	**5.89**	**4.16**	**5.59**	**4.88**

4.3 NBFE&PT

The symbol GS performed the greatest out of the twenty stocks that were tested. The following candlestick chart from TradeStation displays the activity that this symbol had in the market using the group's trading strategy. The red in the chart is loss. The light blue is profit. The candlestick is in 5 minute bars and displays the high and low prices of the stock. The bottom of the chart displays the volume indicator. The volume indicator shows how much trade is happening in the market for the specific stock for that time period.

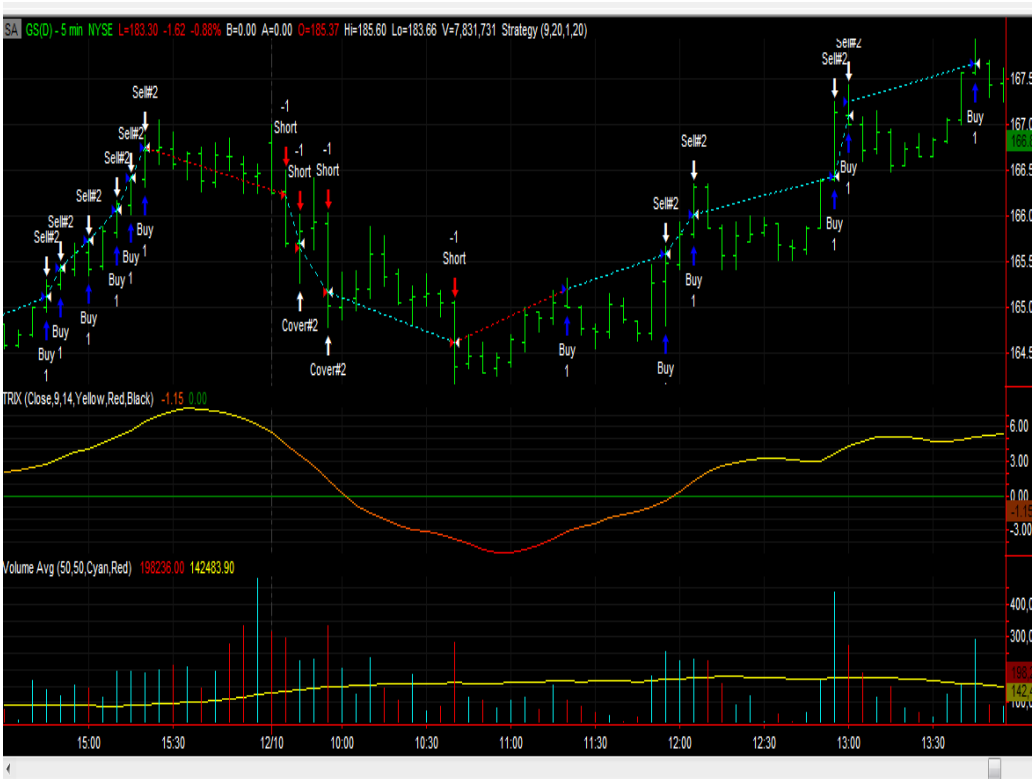

Figure 6: Candlestick Chart of GS from TradeStation.

Table 3 below compares the results before and after optimization. The profits made using the NBFE&PT trading strategy were greatly increased after the strategy was optimized.

Table 3: Profit Results of NBFE&PT Trading Strategy Before and After Optimization.

NBFE&PT	
PROFIT	OPTIMIZED PROFIT
$8.65	$12.43
$0.94	$3.00
$0.62	$9.75
$0.09	$1.23
$3.12	$3.14
$0.04	$0.39
$0.82	$0.23
$0.83	$1.00
$0.24	$0.32
$1.16	$0.10
$2.17	$0.25
$0.73	$1.27
$0.66	$1.62
$2.74	$4.73
$0.61	$1.41
$0.90	$5.25
$0.32	$1.27
$0.71	$0.23
$1.12	$1.67
$0.84	$1.48

The group compared the percent profit of Hessler's neural net to the percent profit of the groups trading strategy (NBFE&PT). Sixteen of the twenty tickers tested performed better using the groups NBFE&PT trading strategy compared to Hessler's. The average percent profit for Hessler's neural net was 2.833%. The average percent profit for the groups NBFE&PT trading strategy was 5.892%. On average, the percent profits of NBFE&PT are greater than that of

Hessler by 3.059%. The results of this 20 random sample exemplify the value that the group has added to Hessler's neural net as seen below in Table 4.

Table 4: Comparison of the Percent Profit Generated by Hessler and by NBFE&PT.

TICKER	% PROFIT HESSLER	% PROFIT NBFE&PT	% DIFFERENCE
GS	-2.75	7.252042007	10.00204201
IM	-3.36	16.79731243	20.15731243
BEN	1.24	9.095149254	7.855149254
CVG	1.26	11.04129264	9.781292639
UNH	3.87	11.3562387	7.486238698
AVID	2.35	3.823529412	1.473529412
EXC	5.27	0.445218738	-4.824781262
GIS	1.86	1.706193482	-0.153806518
HE	-0.5	1.451905626	1.951905626
IFF	-0.83	0.345303867	1.175303867
VRTX	2.99	1.01010101	-1.97989899
GNTX	6.38	7.236467236	0.856467236
ISIL	6.06	6.775407779	0.715407779
RL	5.86	8.941398866	3.081398866
KLAC	7.27	3.585961343	-3.684038657
CYMI	6.46	12.14996529	5.689965286
CPKI	2.08	4.714179659	2.634179659
MAT	2.2	1.178278689	-1.021721311
HOV	3.76	3.851476015	0.091476015
DHI	5.19	5.085910653	-0.104089347
AVG % PROFIT	2.833	5.892166634	3.059166634

Although the main focus is being placed on the NBFE&PT, all other trading strategies also outperformed Hessler's neural net. Surprisingly, all trading strategies had greater percent profits than Hessler's neural net. The chart below displays each trading strategies percent profit compared to that of Hessler. The chart goes in order from the trading strategy with the highest percent profits to the strategy with the lowest percent profits of the eight trading strategies. The trading strategy with the highest percent profit

was NBFE&PT with 5.89%. The trading strategy with the lowest percent profit was MMS&T with 3.86%. Hessler's percent profit was 2.83%. The trading strategy that performed the worst compared to the eight strategies still outperformed Hessler's neural net by about 1%. All of these trading strategies have the ability to add value to Hessler's neural net. However, the group chose to focus on NBFE&PT due to it generating the highest percent profit of all as seen below in Table 5.

4.4 Percent Profit of All Trading Strategies Compared to Percent Profit of Hessler's Neural Net

Table 5: Comparison of Every Trading Strategy to Hessler's Neural Net.

% Profit NBFE&PT	% Profit HESSLER
5.8922	2.83

% Profit NBWRSI	% Profit HESSLER
5.5866	2.83

% Profit NBWT	% Profit HESSLER
4.8791	2.83

% Profit MMSWRSI	% Profit HESSLER
4.3736	2.83

% Profit NBWMA	% Profit HESSLER
4.1564	2.83

% Profit MMSWMA	% Profit HESSLER
4.0176	2.83

% Profit MMSWT	% Profit HESSLER
3.9239	2.83

% Profit MMS&T	% Profit HESSLER
3.8623	2.83

5 Analysis of Results

The groups optimized results yielded the greatest profits that outperformed Hessler's neural net. The graph below shows the results of all of the eight trading strategies in terms of percent profit versus stocks. As seen below in Figure 1, Hessler's neural net performed best prior to optimization. The group did not use the results of the trading strategies before optimization. The importance and effectiveness of TradeStation allowed the group to better their results by using the optimization tool.

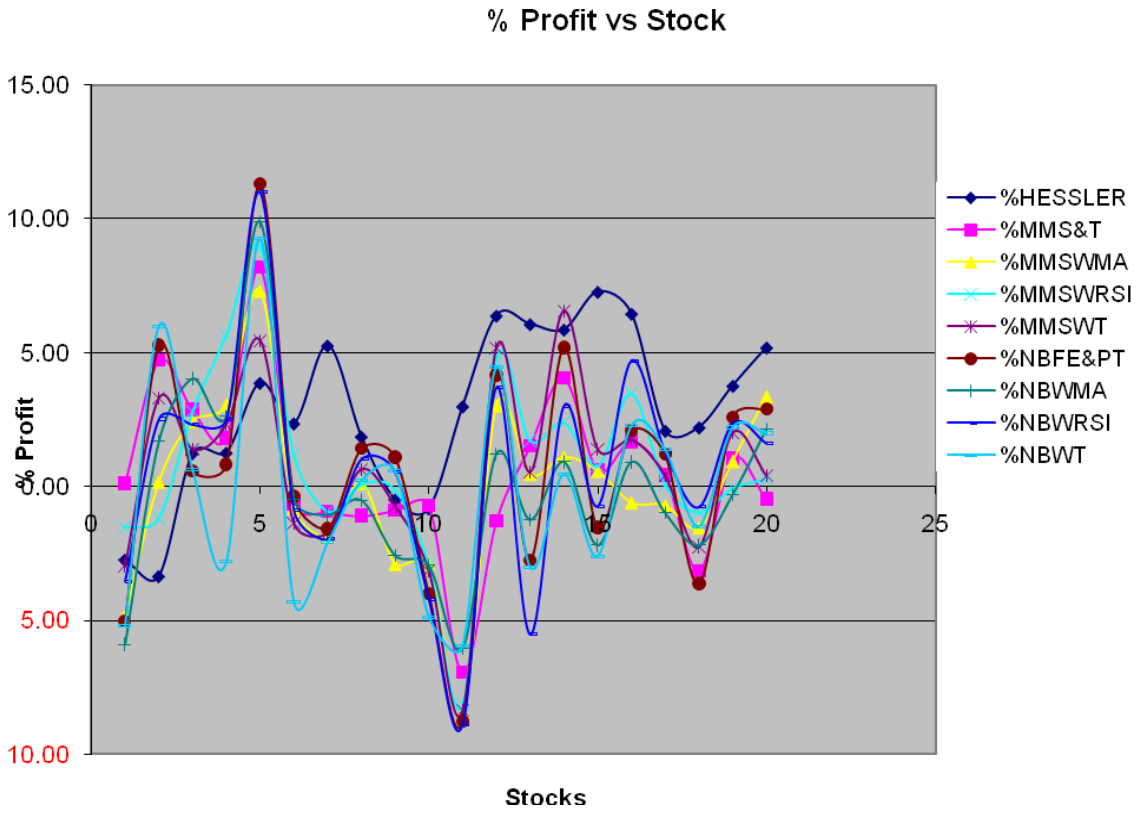

Figure 1: Percent Profit vs. Stocks of all Trading Strategies Tested in TradeStation.

The following graph shows the results of all eight trading strategies when the optimization tool was utilized in TradeStation. With data support, Figure 2 gives a visual representation of all of the trading strategies outperforming Hessler's neural net once optimized.

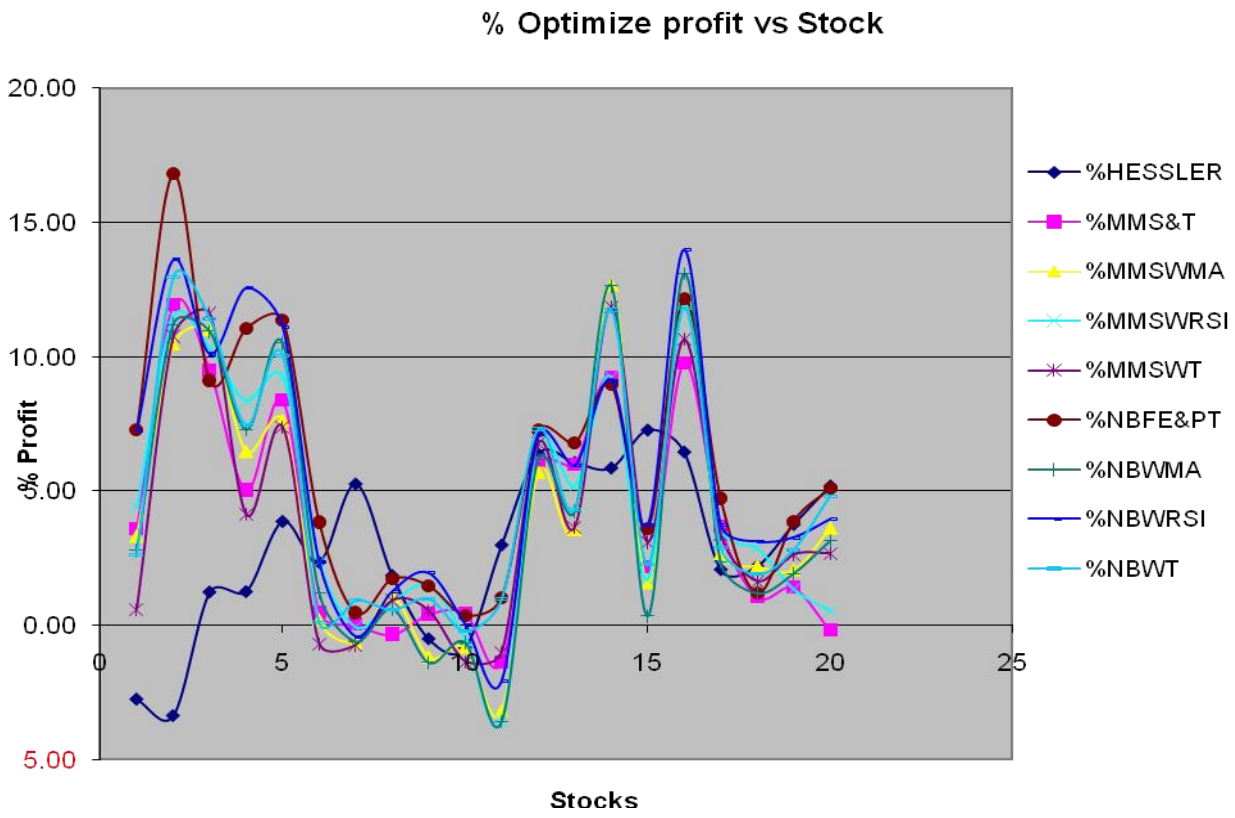

Figure 2: The Percent Profit vs. Stock of all Trading Strategies after Optimization.

The trading strategy that produced the lowest percent profits versus the percent profits produced by Hessler's neural net are plotted in Figure 3.

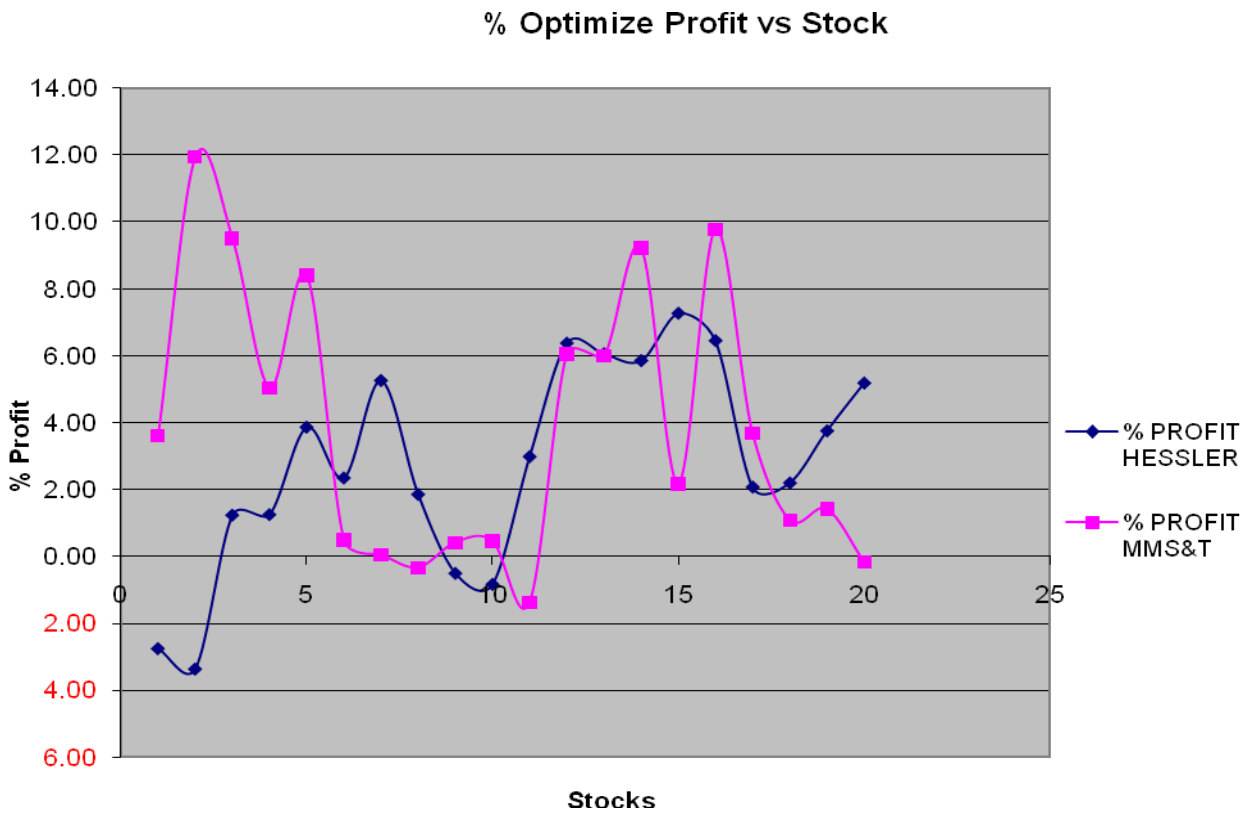

Figure 3: Plot Comparison of Percent Profit Generated by Hessler and by MMS&T.

The trading strategy that produced the second highest percent profits was NBWRSI as seen below in Figure 4. Although this trading strategy did not yield the best results, this trading strategy would still be a great improvement in terms of percent profit compared to Hessler.

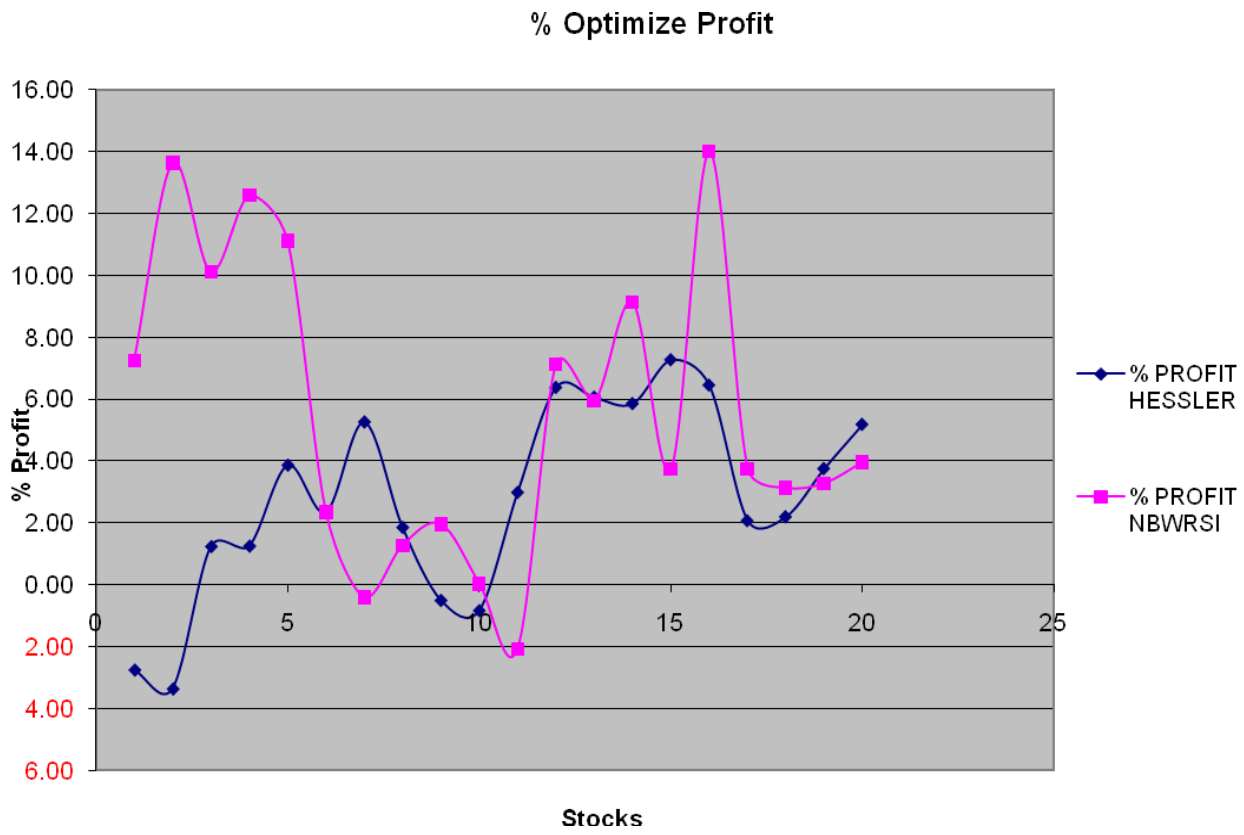

Figure 4: Plot Comparison of Percent Profit Generated by Hessler and by NBWRSI.

The final graph plots the percent profits of the NBFE&PT trading strategy and the percent profits of Hessler's neural nets. Clearly the NBFE&PT trading strategy produces the best results in comparison to the other trading strategies as seen below in Figure 5.

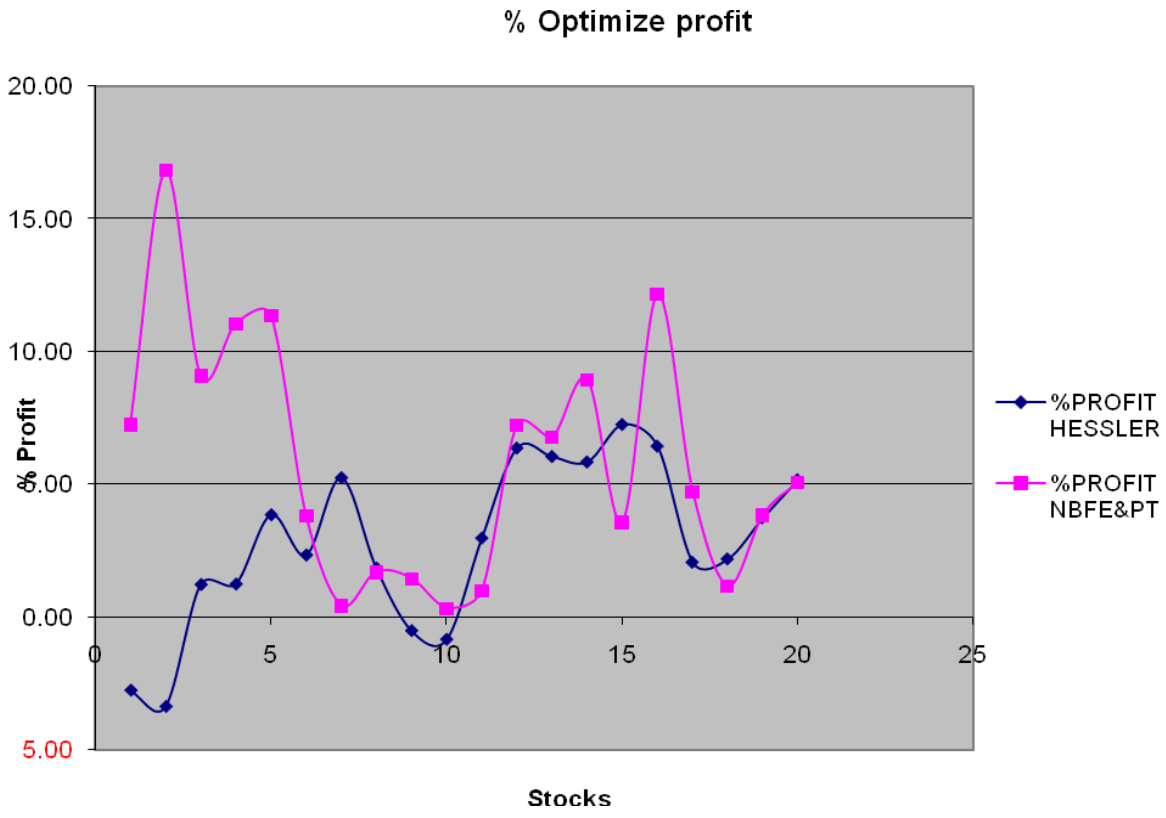

Figure 5:Plot Comparison of Percent Profit Generated by Hessler and by NBFE&PT.

5.1 Real Time Results

The group conducted a real time trade with the NBFE&PT strategy. To simulate the real time trading, the group optimized the strategy until the day before simulation. After the simulation was conducted with NBFE&PT strategy, the results of NBFE&PT were compared with the Hessler's results. The stocks were picked from the Hessler's free daily stock picks. The information and performance of the stocks picks is illustrated in the table 6 below:

Table 6 Live Simulation, NBFE&PT vs. Hesler Percent Profit

				%PROFIT	
Stock Symbol	Simulation Starting day	Simulation Ending day	Simulation Days	Hessler Neural Network	NBFE&PT
BA	04/19/2010	04/22/2010	3	5.96	7.68
SPG	04/19/2010	04/22/2010	3	5.36	7.9

As seen in table 6, the NBFE&PT strategy perform better than the Hessler's Neural Network for these two stocks and for this particular simulation, outperforming the Hessler's Neural Network by a 2% average.

6 Conclusion and Recommendations

In conclusion, the group was able to successfully treat Hessler's neural net as a component of a large technical trading system that generated higher percent profits on average. The profit generated from the N bar since entry and profit target was maximized by optimizing the variables in the strategy. One general conclusion from this study is that the type of exit chosen for a trading system can make a big difference in the system's performance, even the difference between winning and losing. How different exits are combined is also clearly important. The point of this project was not to denounce using Hessler's neural net on Shortterm.com. The purpose was to use Hessler's widely used neural net as a filter and develop a trading strategy to add value to his system. The group was able to successfully generate higher percent profits in all eight of the tested trading strategies. The trading strategy that proved to be most successful was NBFE&PT.

Had time not been a major constraint of the project, numerous modifications and additions could have been appended to this study. One major future recommendation for this study would be to test more stocks in the trading strategies. The group was able to test twenty stock picks which is relatively high but is not enough to be statistically significant. More experimental samples would further validate the results of this IQP. Another possible extension to this research is to use different entry strategies with the various exit strategies. There are many other types of exits not used in this study which could provide different results. Another future recommendation to extend this study would be to conduct more real time testing. Real time testing would be able to further validate the results that the group found that was based upon historical data.

Due to the purpose of the study, the group was not concerned with what types of stocks were tested. Therefore, the group was not concerned with what sector the stock had come from. In future investigations, the group feels that it would be beneficial to separate Hessler's stock picks into sectors and then randomly select a specified number of samples from each sector. By doing so, it would be possible to determine if specific strategies work better in different market sectors. Also, the results may reveal specific which sector produces the best results so that only stocks within that sector are tested or traded in the future.

The group was able to successfully add value to Hessler's neural net. However, in the future the group would aim to improve their own results. Hessler's stock picks would still act as the filter for all tests, however, the trading strategy would be refined to reduce loss and generate even higher percent profits. In the future, the group would ideally want to join forces with Robert Hessler and create a joint trading system to positively impact society through the use of science in the stock market.

Bibliography

Articlesbase. (2007, October 27). *The 10 Factors That Affect and Predict Stock Market*. Retrieved February 30, 2010, from Articlesbase: http://www.articlesbase.com/investing-articles/the-10-factors-that-affect-and-predict-stock-prices-617610.html

Bryant, M. (2007, December). Exits for All Occasions. *The Breakout Bulletin* .

Fama, E. F. (1972). *The Theory of Finance.* Holt Rinehart & Winston.

Hessler, R. (1996). *Short Term Stock Selector*. Retrieved February 30, 2010, from Swing Trading: http://shortterm.com/

Kennon, J. (2007, April 1). *Investing for Beginners*. Retrieved March 10, 2010, from About.com: http://beginnersinvest.about.com/cs/investinglessons/a/aaless1intro_2.htm

Michael. (2004, June 24). *Trading 101 on Moving Averages*. Retrieved April 17, 2010, from Trader Mike: http ://tradermike.net/2004/06/trading_101_moving_averages/

Salcedo, Y. (2007, January). *Trading Systems: Build or buy?* Retrieved March 1, 2010, from Online Trading: http://my.wpi.edu/webapps/portal/frameset.jsp?tab_id=_2_1&url=%2fwebapps%2fblackboard%2fexecute%2flauncher%3ftype%3dCourse%26id%3d_78491_1%26url%3d

Sopata, V. (2004). *40 Risk Control and Trading Tips*. Retrieved 1 2010, March, from Short Picks: http://www.shortpicks.com/short_selling_tips.asp

TradeStation. (2001, January 1). *TradeStation Securities*. Retrieved April 15, 2010, from TradeStation Securities: http://www.tradestation.com/default_2.shtm

Wang, J. (2009). *Identifying and Analyzing Market Trends for Trading Success*. Retrieved 1 2010, April, from AbleTrend: http://www.scribd.com/doc/29218403/AbleTrend-Identifying-and-Analyzing-Market-Trends-for-Trading-Success

Wilder, J. W. (1978). *New Concepts in Technical Trading Systems.* Trend Research; First Edition edition.

Wright, C. (1998). *Trading as a Business.*

7 Appendix A

7.1 EasyLanguage: Exit at N bars since entry

```
Inputs:  ChanLen    (20),
NBEnt      (20),
FrATR      (1.0),
MALen      (20);

Var:     ATR        (0),
MarkPos    (0),
TrailOn    (FALSE);

 ATR = Average(TrueRange, 20);
MarkPos = MarketPosition;

 Buy next bar at Highest(H, ChanLen) + 1 point stop;

 Sell short next bar at Lowest(L, ChanLen) - 1 point stop;

 If MarkPos<> 0 and MarkPos<>MarkPos[1] then
TrailOn = FALSE;

 If MarketPosition = 1 and BarsSinceEntry = NBEnt then
    Sell next bar at market;

 If MarketPosition = -1 and BarsSinceEntry = NBEnt then
    Buy to cover next bar at market;
```

7.2 EasyLanguage: Exit using a money management stop

```
Inputs:  ChanLen    (20),
NBEnt   (20),
FrATR      (1.0),
MALen      (20);

Var:     ATR        (0),
MarkPos    (0),
TrailOn    (FALSE);

 ATR = Average(TrueRange, 20);
MarkPos = MarketPosition;

 Buy next bar at Highest(H, ChanLen) + 1 point stop;

 Sell short next bar at Lowest(L, ChanLen) - 1 point stop;

 If MarkPos<> 0 and MarkPos<>MarkPos[1] then
TrailOn = FALSE;
 If MarketPosition = 1 then
    Sell next bar at EntryPrice - FrATR * ATR stop;

 If MarketPosition = -1 then
    Buy to cover next bar at EntryPrice + FrATR * ATR stop;
```

7.3 EasyLanguage: Exit with a trailing stop

```
Inputs:  ChanLen    (20),
NBEnt      (20),
FrATR      (1.0),
MALen      (20);

Var:     ATR        (0),
MarkPos    (0),
TrailOn    (FALSE);

 ATR = Average(TrueRange, 20);
MarkPos = MarketPosition;

 Buy next bar at Highest(H, ChanLen) + 1 point stop;

 Sell short next bar at Lowest(L, ChanLen) - 1 point stop;

 If MarkPos<> 0 and MarkPos<>MarkPos[1] then
TrailOn = FALSE;
If MarketPosition = 1 and TrailOn = FALSE and (Close - EntryPrice) >FrATR
* ATR then
TrailOn = TRUE;

 If MarketPosition = 1 and TrailOn then
    Sell next bar at (EntryPrice + 0.5 * (C - EntryPrice)) stop;

 If MarketPosition = -1 and TrailOn = FALSE and (EntryPrice - Close)
>FrATR * ATR then
TrailOn = TRUE;

 If MarketPosition = -1 and TrailOn then
    Buy to cover next bar at (EntryPrice - 0.5 * (EntryPrice - C)) stop;
```

7.4 EasyLanguage: Exit at a profit target

```
 Inputs:  ChanLen    (20),
NBEnt      (20),
FrATR      (1.0),
MALen      (20);

Var:     ATR        (0),
MarkPos    (0),
TrailOn    (FALSE);

 ATR = Average(TrueRange, 20);
MarkPos = MarketPosition;

 Buy next bar at Highest(H, ChanLen) + 1 point stop;

 Sell short next bar at Lowest(L, ChanLen) - 1 point stop;

 If MarkPos<> 0 and MarkPos<>MarkPos[1] then
TrailOn = FALSE;
If MarketPosition = 1 then
    Sell next bar at EntryPrice + FrATR * ATR limit;

 If MarketPosition = -1 then
    Buy to cover next bar at EntryPrice - FrATR * ATR limit;
```

7.5 EasyLanguage: Exit on a moving average crossover

```
Inputs:  ChanLen    (20),
NBEnt      (20),
FrATR      (1.0),
MALen      (20);

Var:     ATR        (0),
MarkPos    (0),
TrailOn    (FALSE);

 ATR = Average(TrueRange, 20);
MarkPos = MarketPosition;

 Buy next bar at Highest(H, ChanLen) + 1 point stop;

 Sell short next bar at Lowest(L, ChanLen) - 1 point stop;

 If MarkPos<> 0 and MarkPos<>MarkPos[1] then
TrailOn = FALSE;
If MarketPosition = 1 and C < Average(C, MALen) then
    Sell next bar at market;

 If MarketPosition = -1 and C > Average(C, MALen) then
    Buy to cover next bar at market;
```

7.6 EasyLanguage: Exit on RSI movement

```
Inputs:  ChanLen    (20),
NBEnt      (20),
FrATR      (1.0),
MALen      (20);

Var:     ATR        (0),
MarkPos    (0),
TrailOn    (FALSE);

 ATR = Average(TrueRange, 20);
MarkPos = MarketPosition;

 Buy next bar at Highest(H, ChanLen) + 1 point stop;

 Sell short next bar at Lowest(L, ChanLen) - 1 point stop;

 If MarkPos<> 0 and MarkPos<>MarkPos[1] then
TrailOn = FALSE;
If MarketPosition = 1 and RSI(C, 14) crosses above 70 then
    Sell next bar at market;

 If MarketPosition = -1 and RSI(C, 14) crosses below 30 then
    Buy to cover next bar at market;
```

8 Appendix B

All of the candlestick stock charts below are results from the NBFE&PT trading strategy.

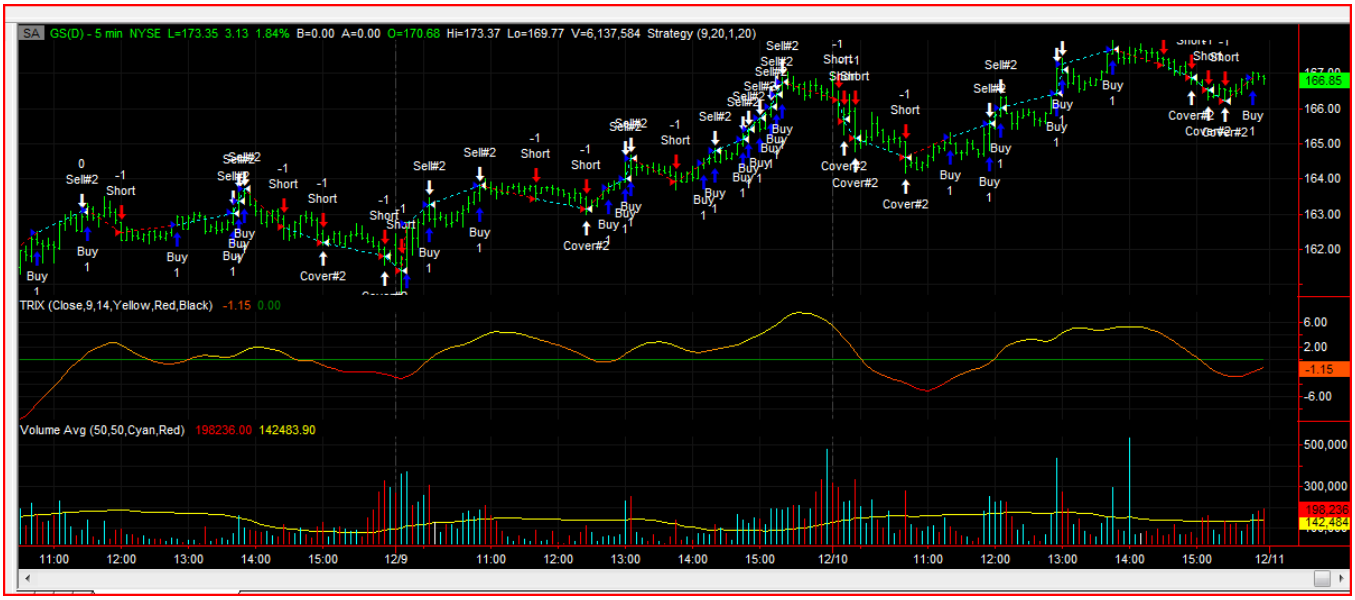

Figure 6: Candlestick Stock Chart of GS Using TradeStation.

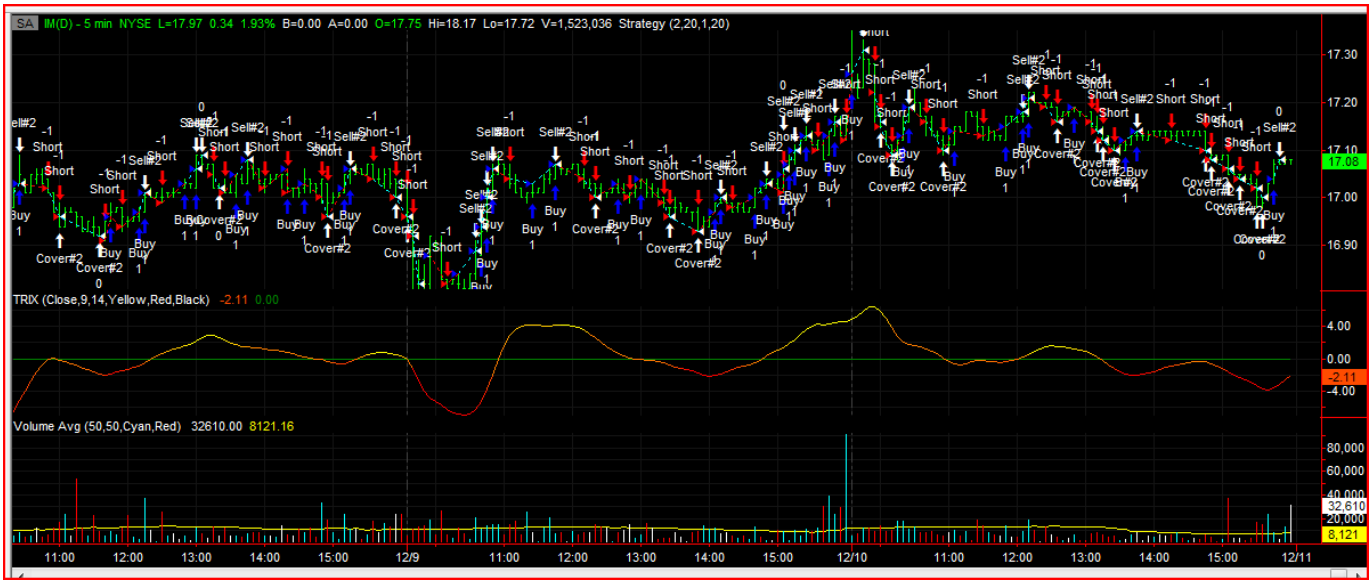

Figure 7: Candlestick Stock Chart of IM Using TradeStation.

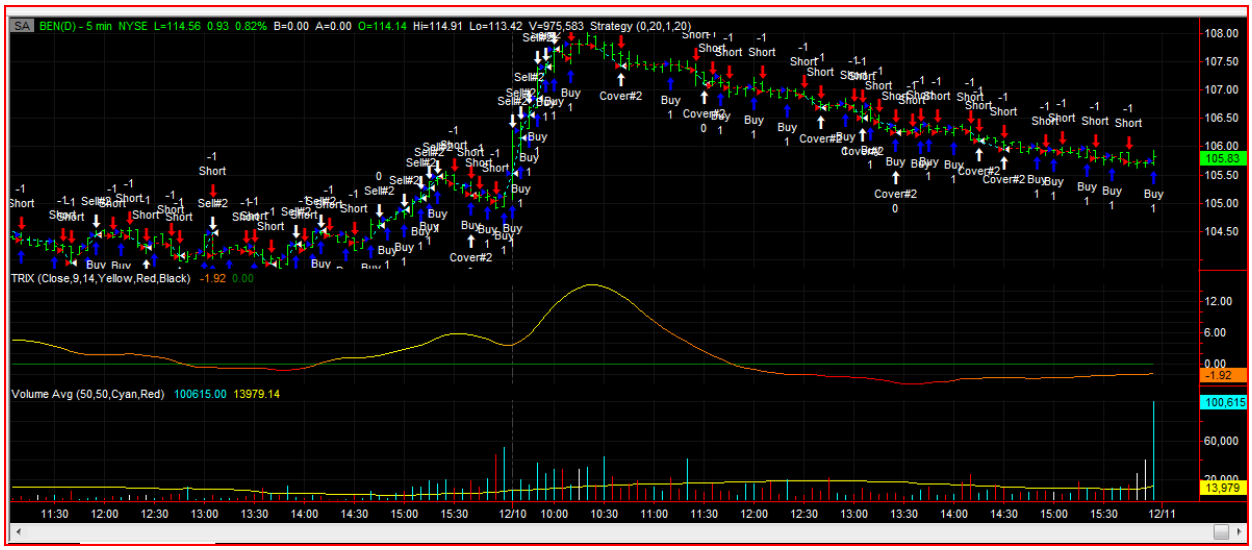

Figure 8: Candlestick Stock Chart of BEN Using TradeStation.

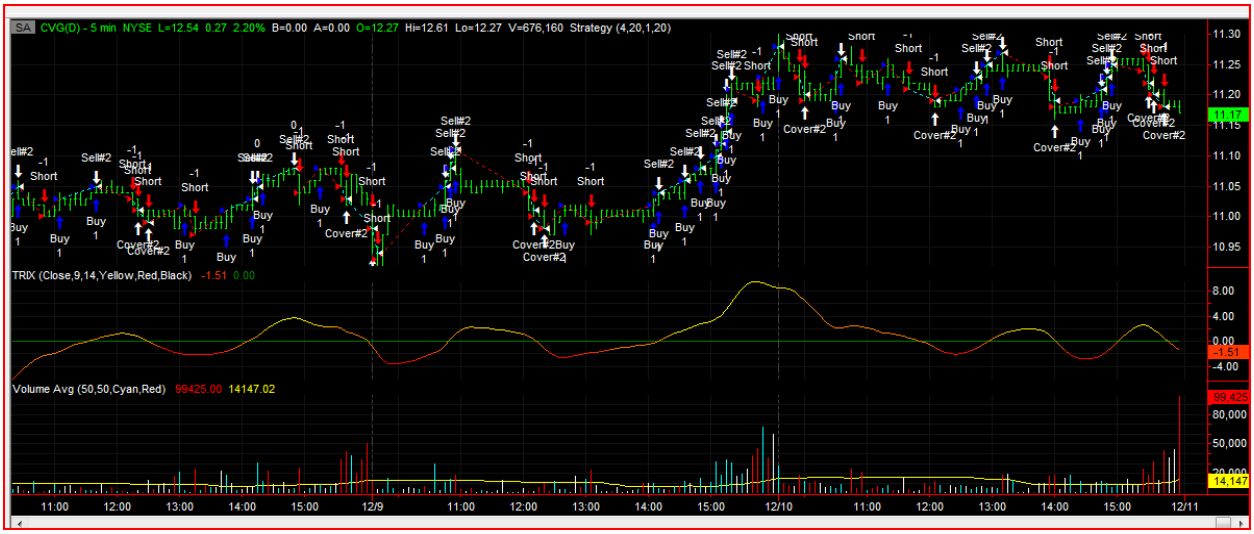

Figure 9: Candlestick Stock Chart of CVG Using TradeStation.

Figure 10: Candlestick Stock Chart of UNH Using TradeStation.

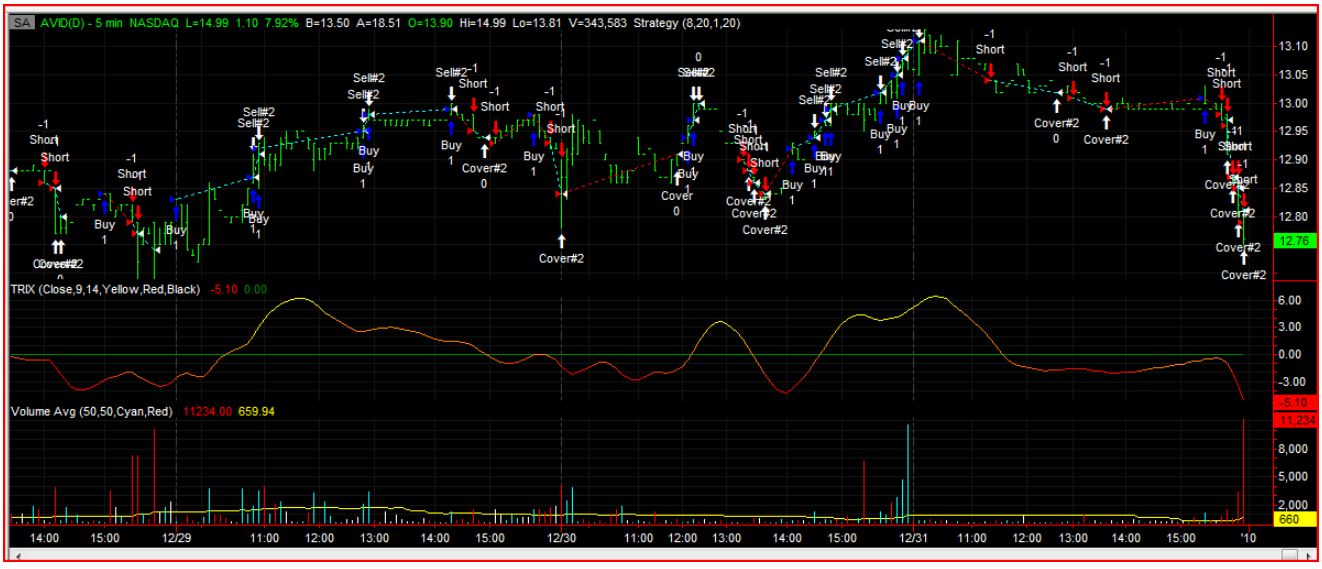

Figure 11: Candlestick Stock Chart of AVID Using TradeStation.

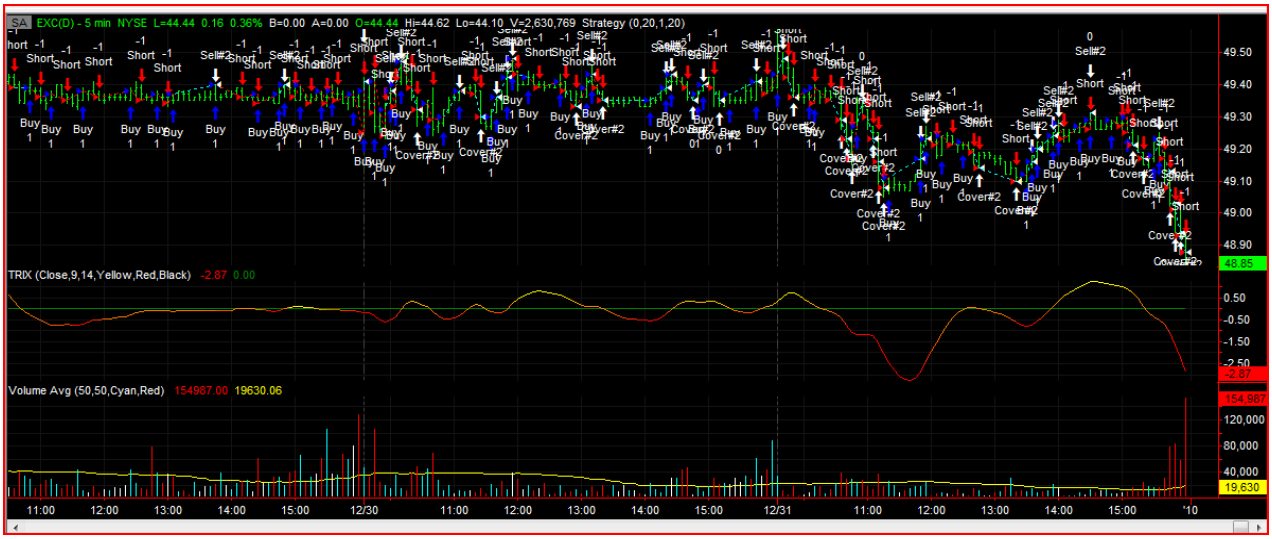

Figure 12: Candlestick Stock Chart of EXC Using TradeStation.

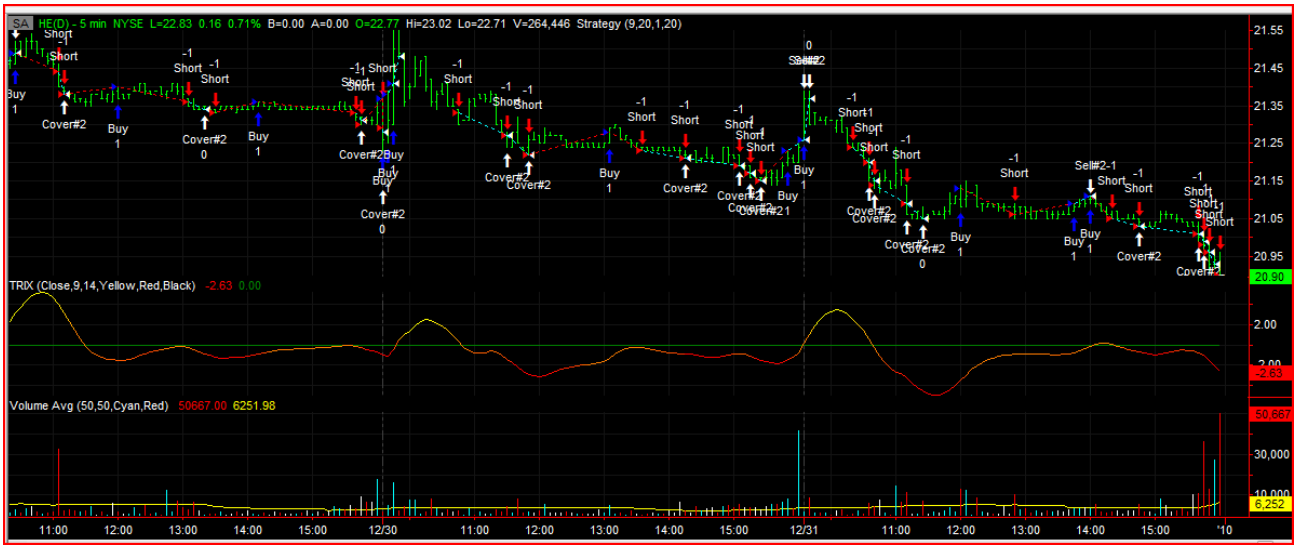

Figure 13: Candlestick Stock Chart of HE Using TradeStation.

Figure 14: Candlestick Stock Chart of GIS Using TradeStation.

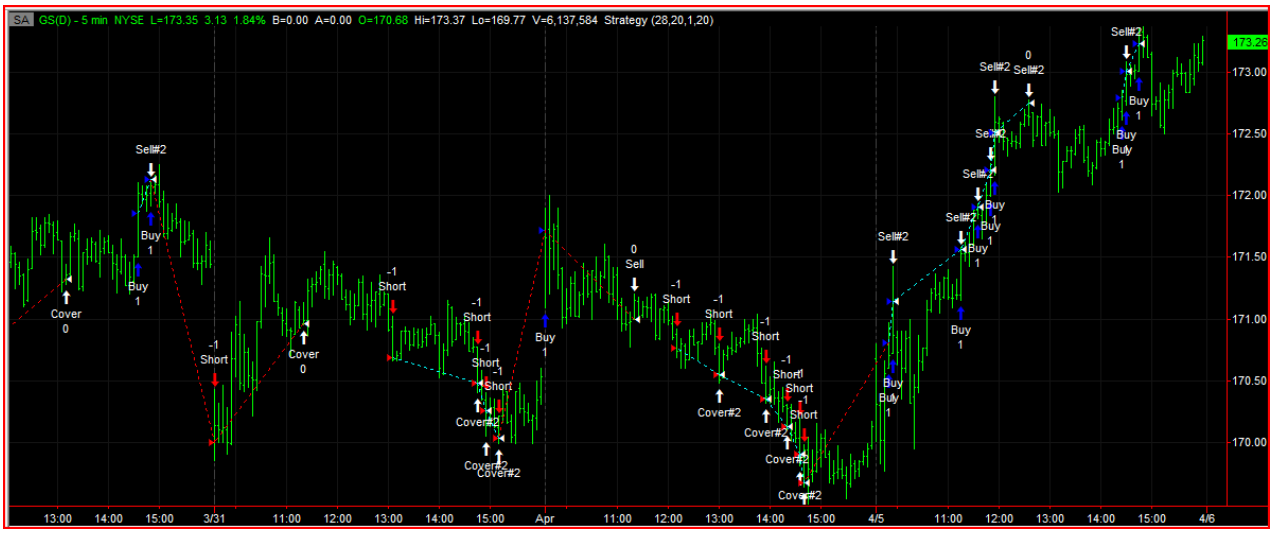

Figure 15: Candlestick Stock Chart of GS Using TradeStation.

Figure 16: Candlestick Stock Chart of VRTX Using TradeStation.

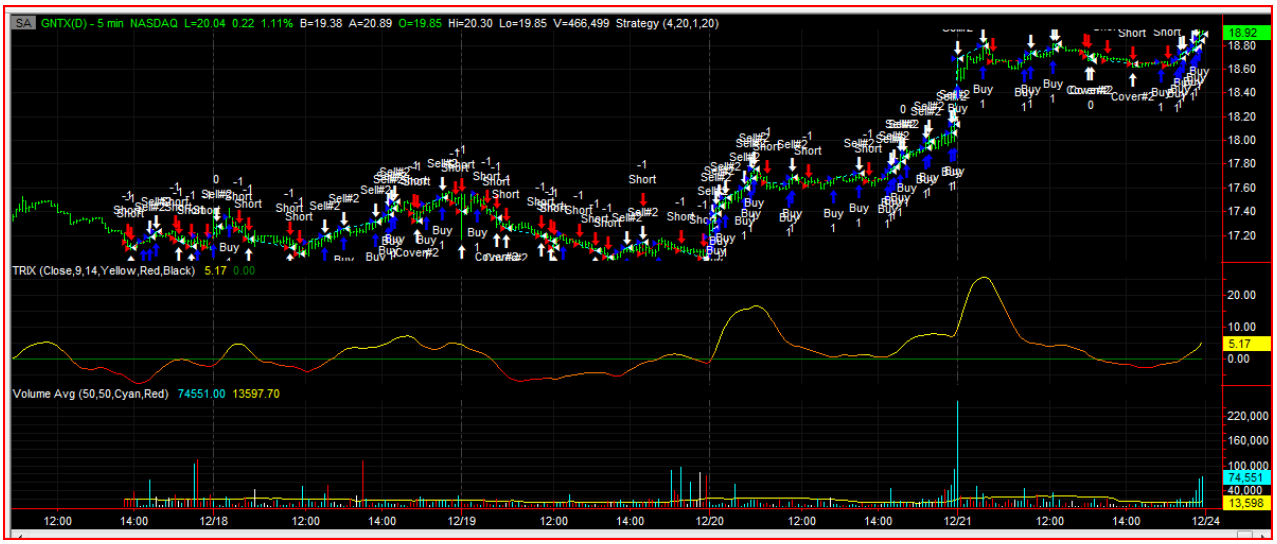

Figure 17 Candlestick Stock Chart of GNTX Using TradeStation.

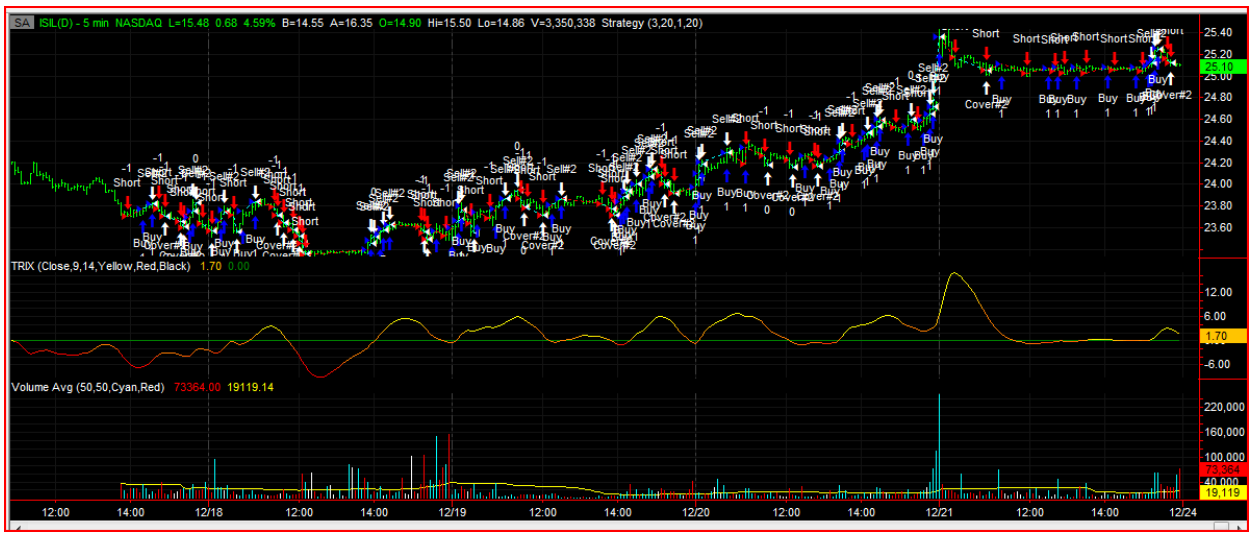

Figure 18: Candlestick Stock Chart of ISIL Using TradeStation.

Figure 19: Candlestick Stock Chart of RL Using TradeStation.

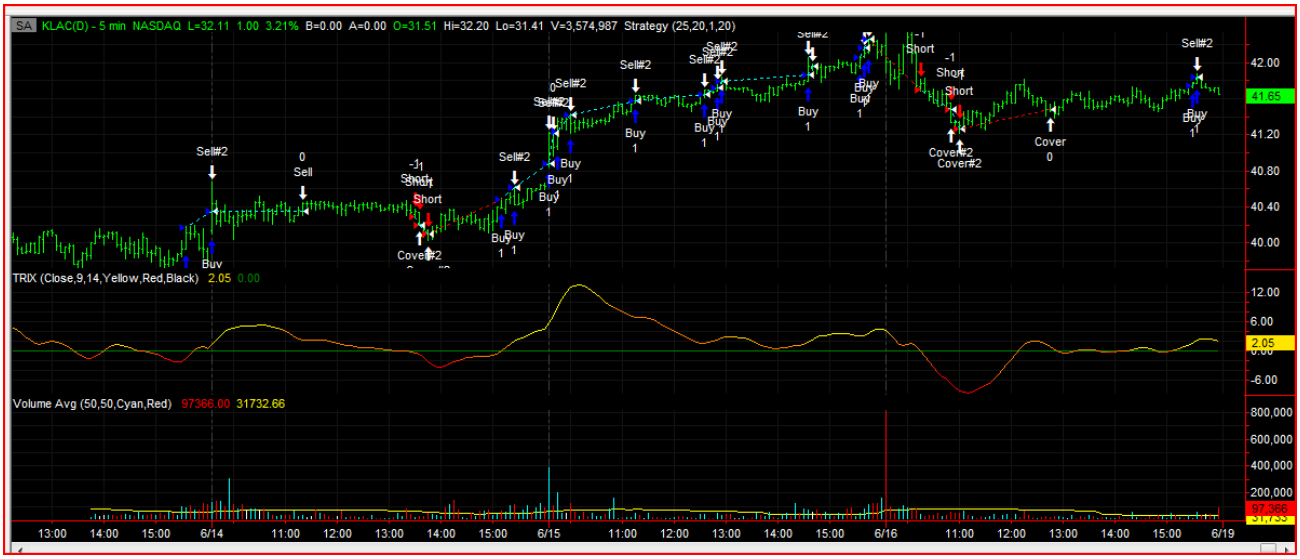

Figure 20: Candlestick Stock Chart of KLAC Using TradeStation.

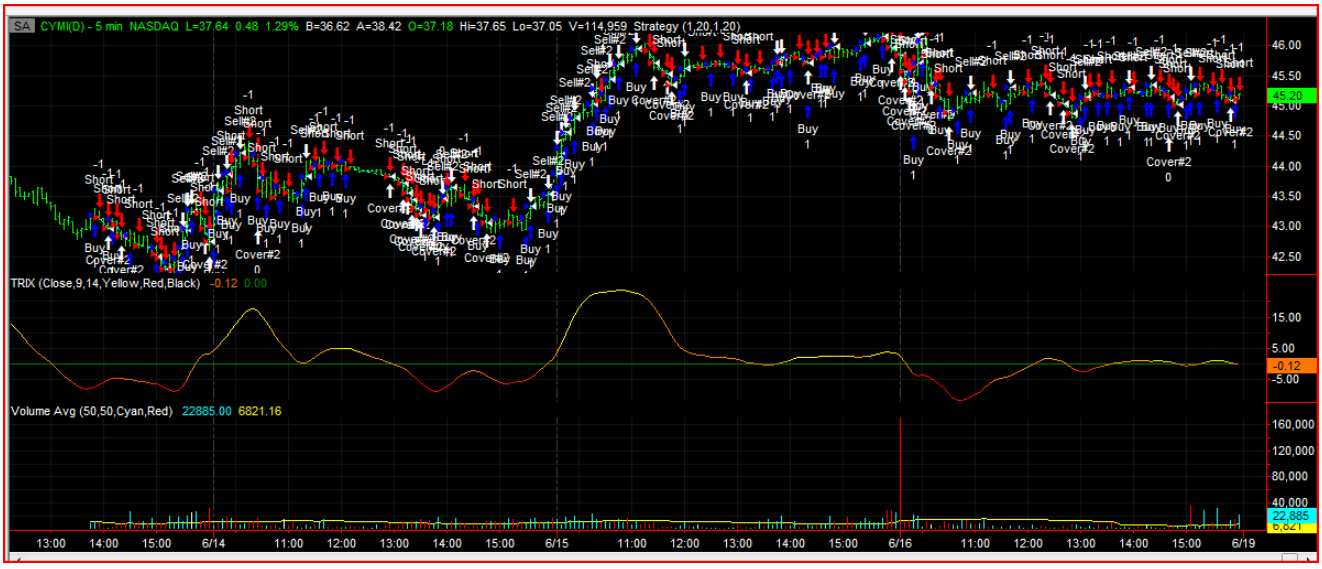

Figure 21: Candlestick Stock Chart of CYMI Using TradeStation.

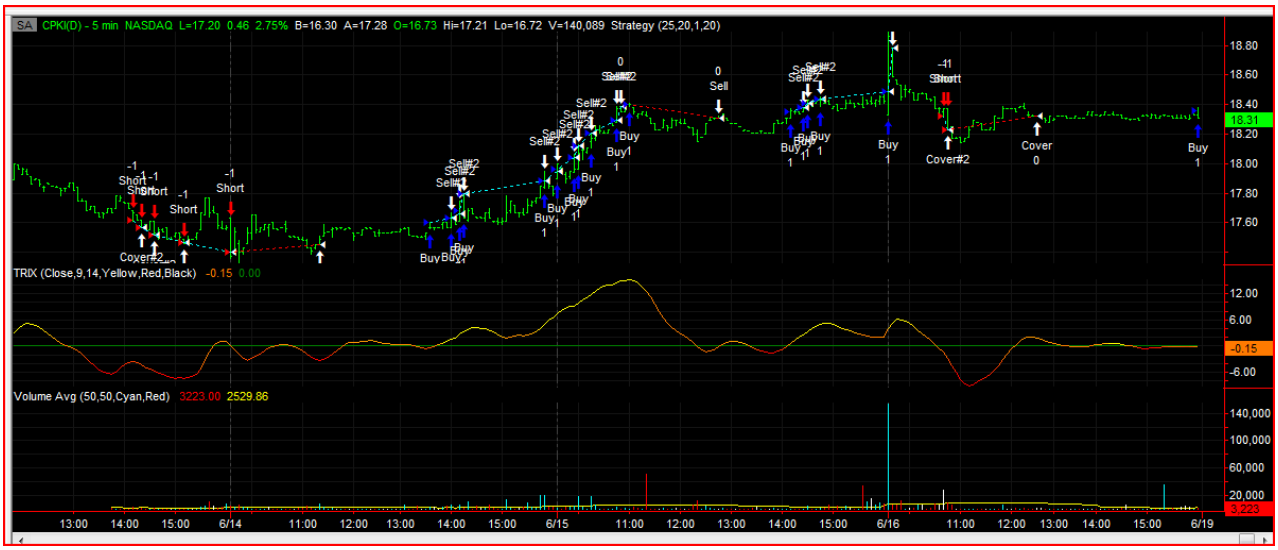

Figure 22: Candlestick Stock Chart of CPKI Using TradeStation.

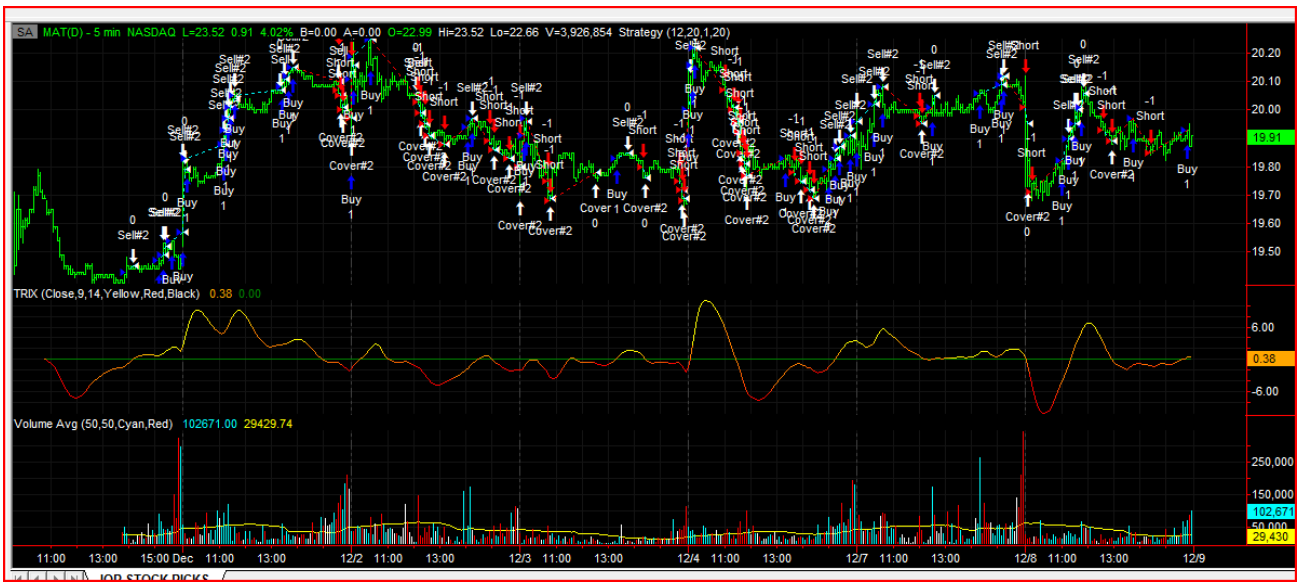

Figure 23: Candlestick Stock Chart of MAT Using TradeStation.

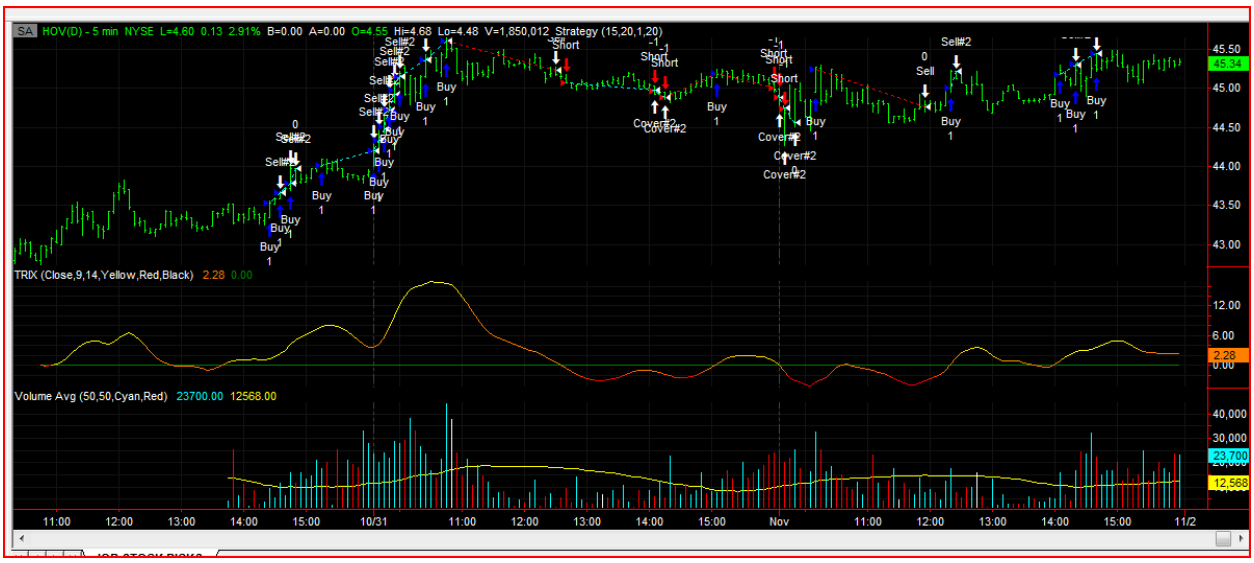

Figure 24: Candlestick Stock Chart of HOV Using TradeStation.

Figure 25: Candlestick Stock Chart of DHI Using TradeStation.

9 Appendix C

9.1 AVID

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	0.39	0.14	0.25
Gross Profit	1.04	0.47	0.57
Gross Loss	-0.65	-0.33	-0.32
Profit Factor	1.6	1.42	1.78
Roll Over Credit	0	0	0
Open Position P/L	0.03	0	0.03
Select Total Net Profit	0.21	0.14	0.07
Select Gross Profit	0.86	0.47	0.39
Select Gross Loss	-0.65	-0.33	-0.32
Select Profit Factor	1.32	1.42	1.22
Adjusted Total Net Profit	0.02	-0.11	-0.02
Adjusted Gross Profit	0.87	0.36	0.44
Adjusted Gross Loss	-0.85	-0.46	-0.46
Adjusted Profit Factor	1.02	0.77	0.95
Total Number of Trades	47	23	24
Percent Profitable	0.766	0.7391	0.7917
Winning Trades	36	17	19
Losing Trades	11	6	5
Even Trades	0	0	0
Avg. Trade Net Profit	0.01	0.01	0.01
Avg. Winning Trade	0.03	0.03	0.03
Avg. Losing Trade	-0.06	-0.06	-0.06
Ratio Avg. Win:Avg. Loss	0.49	0.5	0.47
Largest Winning Trade	0.09	0.04	0.09
Largest Losing Trade	-0.1	-0.09	-0.1
Largest Winner as % of Gross Profit	0.0865	0.0851	0.1579
Largest Loser as % of Gross Loss	0.1538	0.2727	0.3125

TradeStation Periodical Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
40178	0.12	0	2	11	0.7273
40177	0.23	0	2.53	15	0.8667
40176	0.03	0	1.21	10	0.7
40175	0.08	0	2	8	0.75
40174	0	0	0	1	0
40173	0	0	0	1	0
40172	0	0	0	1	0
40171	-0.06	0	0.63	6	0.6667
40170	0.02	0	100	2	0.5

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/31/2009 - 12/31/2009	0.12	0	2	11	0.7273
12/30/2009 - 12/31/2009	0.35	0	2.3	25	0.8
12/29/2009 - 12/31/2009	0.38	0	1.93	34	0.7647
12/28/2009 - 12/31/2009	0.46	0	1.94	42	0.7619
12/27/2009 - 12/31/2009	0.46	0	1.94	42	0.7619
12/26/2009 - 12/31/2009	0.46	0	1.94	42	0.7619
12/25/2009 - 12/31/2009	0.46	0	1.94	42	0.7619
12/24/2009 - 12/31/2009	0.4	0	1.62	47	0.766
12/23/2009 - 12/31/2009	0.42	0	1.65	48	0.7708

9.2 BEN

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	9.75	5.52	4.23
Gross Profit	38.34	20.92	17.42
Gross Loss	-28.59	-15.4	-13.19
Profit Factor	1.34	1.36	1.32
Roll Over Credit	0	0	0
Open Position P/L	0.08	0.08	0
Select Total Net Profit	7.94	4.46	3.48
Select Gross Profit	35.4	18.73	16.67
Select Gross Loss	-27.46	-14.27	-13.19
Select Profit Factor	1.29	1.31	1.26
Adjusted Total Net Profit	5.01	1.86	1.18
Adjusted Gross Profit	35.43	18.65	15.57
Adjusted Gross Loss	-30.42	-16.79	-14.39
Adjusted Profit Factor	1.16	1.11	1.08
Total Number of Trades	420	207	213
Percent Profitable	0.4143	0.4106	0.4178
Winning Trades	174	85	89
Losing Trades	243	122	121
Even Trades	3	0	3
Avg. Trade Net Profit	0.02	0.03	0.02
Avg. Winning Trade	0.22	0.25	0.2
Avg. Losing Trade	-0.12	-0.13	-0.11
Ratio Avg. Win:Avg. Loss	1.87	1.95	1.8
Largest Winning Trade	1.22	1.22	0.75
Largest Losing Trade	-0.73	-0.73	-0.38
Largest Winner as % of Gross Profit	0.0318	0.0583	0.0431
Largest Loser as % of Gross Loss	0.0255	0.0474	0.0288

TradeStation Periodical
Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
40157	0.54	0	1.16	46	0.3043
40156	0.87	0	1.2	56	0.4286
40155	1.52	0	1.39	53	0.4906
40154	1	0	1.3	55	0.5091
40153	0	0	0	1	0
40152	0	0	0	1	0
40151	3.81	0	1.95	52	0.4615
40150	1.99	0	1.82	54	0.4815
40149	0.71	0	1.3	48	0.3542
40148	0.02	0	1.01	46	0.3696
40147	-0.63	0	0.54	19	0.1579

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/10/2009 - 12/10/2009	0.54	0	1.16	46	0.3043
12/9/2009 - 12/10/2009	1.41	0	1.18	101	0.3762
12/8/2009 - 12/10/2009	2.93	0	1.25	153	0.4118
12/7/2009 - 12/10/2009	3.93	0	1.26	207	0.4348
12/6/2009 - 12/10/2009	3.93	0	1.26	207	0.4348
12/5/2009 - 12/10/2009	3.93	0	1.26	207	0.4348
12/4/2009 - 12/10/2009	7.74	0.0001	1.41	258	0.438
12/3/2009 - 12/10/2009	9.73	0.0001	1.46	311	0.4437
12/2/2009 - 12/10/2009	10.44	0.0001	1.44	358	0.433
12/1/2009 - 12/10/2009	10.46	0.0001	1.38	403	0.4268
11/30/2009 - 12/10/2009	9.83	0.0001	1.34	421	0.4157

9.3 CPKI

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	1.27	1.1	0.17
Gross Profit	1.5	1.19	0.31
Gross Loss	-0.23	-0.09	-0.14
Profit Factor	6.52	13.22	2.21
Roll Over Credit	0	0	0
Open Position P/L	-0.05	-0.05	0
Select Total Net Profit	0.98	0.81	0.17
Select Gross Profit	1.21	0.9	0.31
Select Gross Loss	-0.23	-0.09	-0.14
Select Profit Factor	5.26	10	2.21
Adjusted Total Net Profit	0.8	0.7	-0.07
Adjusted Gross Profit	1.16	0.88	0.17
Adjusted Gross Loss	-0.36	-0.18	-0.24
Adjusted Profit Factor	3.21	4.9	0.72
Total Number of Trades	23	16	7
Percent Profitable	0.8696	0.9375	0.7143
Winning Trades	20	15	5
Losing Trades	3	1	2
Even Trades	0	0	0
Avg. Trade Net Profit	0.06	0.07	0.02
Avg. Winning Trade	0.07	0.08	0.06
Avg. Losing Trade	-0.08	-0.09	-0.07
Ratio Avg. Win:Avg. Loss	0.98	0.88	0.89
Largest Winning Trade	0.29	0.29	0.09
Largest Losing Trade	-0.09	-0.09	-0.09
Largest Winner as % of Gross Profit	0.1933	0.2437	0.2903
Largest Loser as % of Gross Loss	0.3913	1	0.6429

Net Profit as % of Largest Loss	14.1111	12.2222	1.8889
Select Net Profit as % of Largest Loss	10.8889	9	1.8889
Adjusted Net Profit as % of Largest Loss	8.9089	7.8083	-0.7515

TradeStation Periodical Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
38884	0.31	0	3.21	5	0.6
38883	0.56	0	6.09	11	0.8182
38882	0.3	0	3.31	7	0.7143
38881	0.05	0	1.5	4	0.75

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
6/16/2006 - 6/16/2006	0.31	0	3.21	5	0.6
6/15/2006 - 6/16/2006	0.87	0	4.78	15	0.8
6/14/2006 - 6/16/2006	1.17	0	5.18	21	0.8095
6/13/2006 - 6/16/2006	1.22	0	5.36	24	0.8333

9.4 CVG

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	1.23	0.77	0.46
Gross Profit	3.35	1.66	1.69
Gross Loss	-2.12	-0.89	-1.23
Profit Factor	1.58	1.87	1.37
Roll Over Credit	0	0	0
Open Position P/L	0.01	0	0.01
Select Total Net Profit	1.26	0.64	0.62
Select Gross Profit	3.22	1.53	1.69
Select Gross Loss	-1.96	-0.89	-1.07
Select Profit Factor	1.64	1.72	1.58
Adjusted Total Net Profit	0.63	0.37	0.01
Adjusted Gross Profit	3.04	1.44	1.47
Adjusted Gross Loss	-2.41	-1.07	-1.47
Adjusted Profit Factor	1.26	1.35	1
Total Number of Trades	169	82	87
Percent Profitable	0.6923	0.6951	0.6897
Winning Trades	117	57	60
Losing Trades	52	25	27
Even Trades	0	0	0
Avg. Trade Net Profit	0.01	0.01	0.01
Avg. Winning Trade	0.03	0.03	0.03
Avg. Losing Trade	-0.04	-0.04	-0.05
Ratio Avg. Win:Avg. Loss	0.7	0.82	0.62
Largest Winning Trade	0.13	0.13	0.05
Largest Losing Trade	-0.16	-0.07	-0.16
Largest Winner as % of Gross Profit	0.0388	0.0783	0.0296
Largest Loser as % of Gross Loss	0.0755	0.0787	0.1301

Net Profit as % of Largest Loss	7.6875	11	2.875
Select Net Profit as % of Largest Loss	7.875	9.1429	3.875
Adjusted Net Profit as % of Largest Loss	3.9144	5.3161	0.0319

TradeStation Periodical Returns:
Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
40157	0.1	0	1.36	24	0.625
40156	0.05	0	1.15	22	0.6364
40155	-0.14	0	0.67	22	0.5
40154	0.19	0	2.27	18	0.7222
40153	0	0	0	1	0
40152	0	0	0	1	0
40151	-0.14	0	0.74	21	0.5238
40150	0.15	0	1.75	20	0.7
40149	0.57	0	6.18	26	0.8077
40148	0.43	0	7.14	18	0.8333
40147	0.03	0	1.6	7	0.5714

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/10/2009 - 12/10/2009	0.1	0	1.36	24	0.625
12/9/2009 - 12/10/2009	0.15	0	1.25	45	0.6444
12/8/2009 - 12/10/2009	0.01	0	1.01	66	0.6061
12/7/2009 - 12/10/2009	0.2	0	1.17	83	0.6386
12/6/2009 - 12/10/2009	0.2	0	1.17	83	0.6386
12/5/2009 - 12/10/2009	0.2	0	1.17	83	0.6386
12/4/2009 - 12/10/2009	0.06	0	1.04	103	0.6214
12/3/2009 - 12/10/2009	0.21	0	1.11	122	0.6393
12/2/2009 - 12/10/2009	0.78	0	1.39	147	0.6735
12/1/2009 - 12/10/2009	1.21	0	1.58	164	0.6951
11/30/2009 - 12/10/2009	1.24	0	1.58	170	0.6941

9.5 CYMI

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	5.25	3.61	1.64
Gross Profit	13.52	7.75	5.77
Gross Loss	-8.27	-4.14	-4.13
Profit Factor	1.63	1.87	1.4
Roll Over Credit	0	0	0
Open Position P/L	-0.08	0	-0.08
Select Total Net Profit	4.92	3.28	1.64
Select Gross Profit	12.87	7.1	5.77
Select Gross Loss	-7.95	-3.82	-4.13
Select Profit Factor	1.62	1.86	1.4
Adjusted Total Net Profit	2.8	1.72	0.07
Adjusted Gross Profit	12	6.51	4.86
Adjusted Gross Loss	-9.19	-4.79	-4.79
Adjusted Profit Factor	1.3	1.36	1.01
Total Number of Trades	160	80	80
Percent Profitable	0.4938	0.4875	0.5
Winning Trades	79	39	40
Losing Trades	80	41	39
Even Trades	1	0	1
Avg. Trade Net Profit	0.03	0.05	0.02
Avg. Winning Trade	0.17	0.2	0.14
Avg. Losing Trade	-0.1	-0.1	-0.11
Ratio Avg. Win: Avg. Loss	1.66	1.97	1.36
Largest Winning Trade	0.65	0.65	0.43
Largest Losing Trade	-0.32	-0.32	-0.31
Largest Winner as % of Gross Profit	0.0481	0.0839	0.0745
Largest Loser as % of Gross Loss	0.0387	0.0773	0.0751

Net Profit as % of Largest Loss	16.4062	11.2813	5.2903
Select Net Profit as % of Largest Loss	15.375	10.25	5.2903
Adjusted Net Profit as % of Largest Loss	8.7633	5.3826	0.214

TradeStation Periodical Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
38884	1.41	0	1.56	51	0.4706
38883	2.56	0	2.63	45	0.5556
38882	0.46	0	1.13	47	0.4255
38881	0.74	0	1.67	21	0.5238

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
6/16/2006 - 6/16/2006	1.41	0	1.56	51	0.4706
6/15/2006 - 6/16/2006	3.97	0	2.01	95	0.5158
6/14/2006 - 6/16/2006	4.43	0	1.61	141	0.4894
6/13/2006 - 6/16/2006	5.17	0.0001	1.62	161	0.4907

9.6 DHI

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	1.48	1.32	0.16
Gross Profit	2.35	2.06	0.29
Gross Loss	-0.87	-0.74	-0.13
Profit Factor	2.7	2.78	2.23
Roll Over Credit	0	0	0
Open Position P/L	-0.2	-0.2	0
Select Total Net Profit	1.27	1.11	0.16
Select Gross Profit	2.14	1.85	0.29
Select Gross Loss	-0.87	-0.74	-0.13
Select Profit Factor	2.46	2.5	2.23
Adjusted Total Net Profit	0.55	0.43	-0.14
Adjusted Gross Profit	1.86	1.6	0.12
Adjusted Gross Loss	-1.31	-1.17	-0.26
Adjusted Profit Factor	1.43	1.37	0.47
Total Number of Trades	27	23	4
Percent Profitable	0.8519	0.8696	0.75
Winning Trades	23	20	3
Losing Trades	4	3	1
Even Trades	0	0	0
Avg. Trade Net Profit	0.05	0.06	0.04
Avg. Winning Trade	0.1	0.1	0.1
Avg. Losing Trade	-0.22	-0.25	-0.13
Ratio Avg. Win:Avg. Loss	0.47	0.42	0.74
Largest Winning Trade	0.21	0.21	0.11
Largest Losing Trade	-0.34	-0.34	-0.13
Largest Winner as % of Gross Profit	0.0894	0.1019	0.3793
Largest Loser as % of Gross Loss	0.3908	0.4595	1
Net Profit as % of Largest Loss	4.3529	3.8824	1.2308
Select Net Profit as % of Largest Loss	3.7353	3.2647	1.2308

Adjusted Net Profit as % of Largest Loss	1.6323	1.271	-1.0572

TradeStation Periodical Returns:
Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
38657	0.37	0	1.9	10	0.7
38656	0.68	0	2.03	15	0.8
38655	0	0	0	1	0
38654	0	0	0	1	0
38653	0.23	0	3.56	5	0.8

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
11/1/2005 - 11/1/2005	0.37	0	1.9	10	0.7
10/31/2005 - 11/1/2005	1.05	0	1.98	24	0.7917
10/30/2005 - 11/1/2005	1.05	0	1.98	24	0.7917
10/29/2005 - 11/1/2005	1.05	0	1.98	24	0.7917
10/28/2005 - 11/1/2005	1.28	0	2.2	28	0.8214

9.7 EXC

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	0.23	-0.01	0.24
Gross Profit	4.84	2.54	2.3
Gross Loss	-4.61	-2.55	-2.06
Profit Factor	1.05	1	1.12
Roll Over Credit	0	0	0
Open Position P/L	0.03	0	0.03
Select Total Net Profit	0.16	-0.21	0.37
Select Gross Profit	4.47	2.17	2.3
Select Gross Loss	-4.31	-2.38	-1.93
Select Profit Factor	1.04	0.91	1.19
Adjusted Total Net Profit	-0.73	-0.73	-0.39
Adjusted Gross Profit	4.31	2.15	1.94
Adjusted Gross Loss	-5.04	-2.88	-2.34
Adjusted Profit Factor	0.86	0.75	0.83
Total Number of Trades	206	104	102
Percent Profitable	0.4078	0.4135	0.402
Winning Trades	84	43	41
Losing Trades	115	59	56
Even Trades	7	2	5
Avg. Trade Net Profit	0	0	0
Avg. Winning Trade	0.06	0.06	0.06
Avg. Losing Trade	-0.04	-0.04	-0.04
Ratio Avg. Win:Avg. Loss	1.44	1.37	1.52
Largest Winning Trade	0.2	0.2	0.1
Largest Losing Trade	-0.17	-0.17	-0.13
Largest Winner as % of Gross Profit	0.0413	0.0787	0.0435
Largest Loser as % of Gross Loss	0.0369	0.0667	0.0631
Net Profit as % of Largest Loss	1.3529	-0.0588	1.8462
Select Net Profit as % of Largest Loss	0.9412	-1.2353	2.8462

Adjusted Net Profit as % of Largest Loss	-4.2822	-4.2902	-3.0345

TradeStation Periodical Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
40178	0.58	0	1.76	48	0.5417
40177	-0.26	0	0.78	43	0.4419
40176	-0.54	0	0.41	36	0.1667
40175	0.14	0	1.15	42	0.4286
40174	0	0	0	1	0
40173	0	0	0	1	0
40172	0	0	0	1	0
40171	0.37	0	1.88	23	0.4348
40170	-0.03	0	0.93	20	0.4

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/31/2009 - 12/31/2009	0.58	0	1.76	48	0.5417
12/30/2009 - 12/31/2009	0.32	0	1.16	90	0.5
12/29/2009 - 12/31/2009	-0.22	0	0.92	125	0.408
12/28/2009 - 12/31/2009	-0.08	0	0.98	166	0.4096
12/27/2009 - 12/31/2009	-0.08	0	0.98	166	0.4096
12/26/2009 - 12/31/2009	-0.08	0	0.98	166	0.4096
12/25/2009 - 12/31/2009	-0.08	0	0.98	166	0.4096
12/24/2009 - 12/31/2009	0.29	0	1.07	188	0.4096
12/23/2009 - 12/31/2009	0.26	0	1.06	207	0.4106

9.8 GS

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	1.06	5.05	-3.99
Gross Profit	11.13	9.25	1.88
Gross Loss	-10.07	-4.2	-5.87
Profit Factor	1.11	2.2	0.32
Roll Over Credit	0	0	0
Open Position P/L	0.17	0	0.17
Select Total Net Profit	-0.36	3.63	-3.99
Select Gross Profit	9.71	7.83	1.88
Select Gross Loss	-10.07	-4.2	-5.87
Select Profit Factor	0.96	1.86	0.32
Adjusted Total Net Profit	-4.53	1.02	-7.64
Adjusted Gross Profit	9.1	7.32	1.17
Adjusted Gross Loss	-13.63	-6.3	-8.81
Adjusted Profit Factor	0.67	1.16	0.13
Total Number of Trades	38	27	11
Percent Profitable	0.7895	0.8519	0.6364
Winning Trades	30	23	7
Losing Trades	8	4	4
Even Trades	0	0	0
Avg. Trade Net Profit	0.03	0.19	-0.36
Avg. Winning Trade	0.37	0.4	0.27
Avg. Losing Trade	-1.26	-1.05	-1.47
Ratio Avg. Win:Avg. Loss	0.29	0.38	0.18
Largest Winning Trade	1.42	1.42	0.42
Largest Losing Trade	-2.19	-1.46	-2.19
Largest Winner as % of Gross Profit	0.1276	0.1535	0.2234
Largest Loser as % of Gross Loss	0.2175	0.3476	0.3731
Net Profit as % of Largest Loss	0.484	3.4589	-1.8219
Select Net Profit as % of Largest Loss	-0.1644	2.4863	-1.8219

Adjusted Net Profit as % of Largest Loss	-2.0696	0.6995	-3.4866

TradeStation Periodical Returns:
Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
40276	0.41	0	1.17	9	0.7778
40275	1.85	0	1.69	12	0.75
40274	-3.1	0	0.19	7	0.4286
40273	1.73	0	3.54	10	0.9
40272	0	0	0	1	0
40271	0	0	0	1	0
40270	0	0	0	1	0
40269	0.34	0	1.62	5	0.8

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
4/8/2010 - 4/8/2010	0.41	0	1.17	9	0.7778
4/7/2010 - 4/8/2010	2.26	0	1.45	20	0.8
4/6/2010 - 4/8/2010	-0.84	0	0.9	26	0.7308
4/5/2010 - 4/8/2010	0.89	0	1.09	35	0.7714
4/4/2010 - 4/8/2010	0.89	0	1.09	35	0.7714
4/3/2010 - 4/8/2010	0.89	0	1.09	35	0.7714
4/2/2010 - 4/8/2010	0.89	0	1.09	35	0.7714
4/1/2010 - 4/8/2010	1.23	0	1.12	39	0.7949

9.9 HE

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	0.32	0.19	0.13
Gross Profit	1.55	0.83	0.72
Gross Loss	-1.23	-0.64	-0.59
Profit Factor	1.26	1.3	1.22
Roll Over Credit	0	0	0
Open Position P/L	0	0	0
Select Total Net Profit	0.21	0.08	0.13
Select Gross Profit	1.44	0.72	0.72
Select Gross Loss	-1.23	-0.64	-0.59
Select Profit Factor	1.17	1.13	1.22
Adjusted Total Net Profit	-0.18	-0.19	-0.2
Adjusted Gross Profit	1.31	0.64	0.57
Adjusted Gross Loss	-1.49	-0.83	-0.77
Adjusted Profit Factor	0.88	0.77	0.74
Total Number of Trades	64	31	33
Percent Profitable	0.6563	0.6452	0.6667
Winning Trades	42	20	22
Losing Trades	22	11	11
Even Trades	0	0	0
Avg. Trade Net Profit	0.01	0.01	0
Avg. Winning Trade	0.04	0.04	0.03
Avg. Losing Trade	-0.06	-0.06	-0.05
Ratio Avg. Win:Avg. Loss	0.66	0.71	0.61
Largest Winning Trade	0.11	0.11	0.06
Largest Losing Trade	-0.1	-0.1	-0.08
Largest Winner as % of Gross Profit	0.071	0.1325	0.0833
Largest Loser as % of Gross Loss	0.0813	0.1563	0.1356
Net Profit as % of Largest Loss	3.2	1.9	1.625
Select Net Profit as % of Largest Loss	2.1	0.8	1.625

Adjusted Net Profit as % of Largest Loss	-1.8141	-1.8856	-2.5175

TradeStation Periodical Returns:
Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
40178	0.28	0	2.75	16	0.75
40177	0	0	1	15	0.6667
40176	0.02	0	1.1	12	0.5
40175	-0.01	0	0.97	14	0.5
40174	0	0	0	1	0
40173	0	0	0	1	0
40172	0	0	0	1	0
40171	-0.03	0	0.86	7	0.5714
40170	0.06	0	1.75	6	0.6667

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/31/2009 - 12/31/2009	0.28	0	2.75	16	0.75
12/30/2009 - 12/31/2009	0.28	0	1.6	30	0.7
12/29/2009 - 12/31/2009	0.3	0	1.45	41	0.6585
12/28/2009 - 12/31/2009	0.29	0	1.3	54	0.6296
12/27/2009 - 12/31/2009	0.29	0	1.3	54	0.6296
12/26/2009 - 12/31/2009	0.29	0	1.3	54	0.6296
12/25/2009 - 12/31/2009	0.29	0	1.3	54	0.6296
12/24/2009 - 12/31/2009	0.26	0	1.23	60	0.6333
12/23/2009 - 12/31/2009	0.32	0	1.26	65	0.6462

9.10 HOV

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	1.67	1.38	0.29
Gross Profit	3.03	2.42	0.61
Gross Loss	-1.36	-1.04	-0.32
Profit Factor	2.23	2.33	1.91
Roll Over Credit	0	0	0
Open Position P/L	-0.11	-0.11	0
Select Total Net Profit	1.67	1.38	0.29
Select Gross Profit	3.03	2.42	0.61
Select Gross Loss	-1.36	-1.04	-0.32
Select Profit Factor	2.23	2.33	1.91
Adjusted Total Net Profit	0.29	0.13	-0.3
Adjusted Gross Profit	2.33	1.77	0.34
Adjusted Gross Loss	-2.04	-1.64	-0.64
Adjusted Profit Factor	1.14	1.08	0.53
Total Number of Trades	23	17	6
Percent Profitable	0.8261	0.8235	0.8333
Winning Trades	19	14	5
Losing Trades	4	3	1
Even Trades	0	0	0
Avg. Trade Net Profit	0.07	0.08	0.05
Avg. Winning Trade	0.16	0.17	0.12
Avg. Losing Trade	-0.34	-0.35	-0.32
Ratio Avg. Win:Avg. Loss	0.47	0.5	0.38
Largest Winning Trade	0.24	0.24	0.17
Largest Losing Trade	-0.48	-0.48	-0.32
Largest Winner as % of Gross Profit	0.0792	0.0992	0.2787
Largest Loser as % of Gross Loss	0.3529	0.4615	1
Net Profit as % of Largest Loss	3.4792	2.875	0.9062
Select Net Profit as % of Largest Loss	3.4792	2.875	0.9062

Adjusted Net Profit as % of Largest Loss	0.6143	0.2766	-0.9463

TradeStation Periodical Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
38657	0.28	0	1.47	8	0.75
38656	0.92	0	2.05	14	0.7857
38655	0	0	0	1	0
38654	0	0	0	1	0
38653	0.36	0	5.5	4	0.75

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
11/1/2005 - 11/1/2005	0.28	0	1.47	8	0.75
10/31/2005 - 11/1/2005	1.2	0	1.82	21	0.7619
10/30/2005 - 11/1/2005	1.2	0	1.82	21	0.7619
10/29/2005 - 11/1/2005	1.2	0	1.82	21	0.7619
10/28/2005 - 11/1/2005	1.56	0	2.06	24	0.7917

9.11 IM

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	3	0.98	2.02
Gross Profit	8.66	3.63	5.03
Gross Loss	-5.66	-2.65	-3.01
Profit Factor	1.53	1.37	1.67
Roll Over Credit	0	0	0
Open Position P/L	0	0	0
Select Total Net Profit	2.44	0.75	1.69
Select Gross Profit	7.73	3.4	4.33
Select Gross Loss	-5.29	-2.65	-2.64
Select Profit Factor	1.46	1.28	1.64
Adjusted Total Net Profit	1.94	0.3	1.2
Adjusted Gross Profit	8.06	3.25	4.56
Adjusted Gross Loss	-6.12	-2.94	-3.36
Adjusted Profit Factor	1.32	1.1	1.36
Total Number of Trades	363	171	192
Percent Profitable	0.5675	0.5205	0.6094
Winning Trades	206	89	117
Losing Trades	154	81	73
Even Trades	3	1	2
Avg. Trade Net Profit	0.01	0.01	0.01
Avg. Winning Trade	0.04	0.04	0.04
Avg. Losing Trade	-0.04	-0.03	-0.04
Ratio Avg. Win:Avg. Loss	1.14	1.25	1.04
Largest Winning Trade	0.34	0.23	0.34
Largest Losing Trade	-0.23	-0.09	-0.23
Largest Winner as % of Gross Profit	0.0393	0.0634	0.0676
Largest Loser as % of Gross Loss	0.0406	0.034	0.0764
Net Profit as % of Largest Loss	13.0435	10.8889	8.7826
Select Net Profit as % of Largest Loss	10.6087	8.3333	7.3478

Adjusted Net Profit as % of Largest Loss	8.4371	3.342	5.2291

TradeStation Periodical Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
40157	0.26	0	1.72	30	0.6333
40156	0.17	0	1.3	35	0.5143
40155	-0.02	0	0.97	30	0.4333
40154	-0.02	0	0.96	28	0.4286
40153	0	0	0	1	0
40152	0	0	0	1	0
40151	0.29	0	1.43	31	0.6129
40150	0.08	0	1.16	34	0.5588
40149	0.26	0	1.74	26	0.6154
40148	0.1	0	1.33	24	0.625
40147	0.58	0	2.71	31	0.6774
40146	0	0	0	1	0
40145	0	0	0	1	0
40144	0.68	0	3.72	17	0.6471
40143	0	0	0	1	0
40142	0.18	0	1.53	30	0.6
40141	0.27	0	1.68	25	0.6
40140	0.18	0	1.49	24	0.375
40139	0	0	0	1	0
40138	0	0	0	1	0
40137	-0.01	0	0.94	11	0.5455

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/10/2009 - 12/10/2009	0.26	0	1.72	30	0.6333
12/9/2009 - 12/10/2009	0.43	0	1.47	64	0.5781
12/8/2009 - 12/10/2009	0.41	0	1.26	93	0.5376
12/7/2009 - 12/10/2009	0.39	0	1.19	120	0.5083
12/6/2009 - 12/10/2009	0.39	0	1.19	120	0.5083
12/5/2009 - 12/10/2009	0.39	0	1.19	120	0.5083
12/4/2009 - 12/10/2009	0.68	0	1.25	150	0.5333
12/3/2009 - 12/10/2009	0.76	0	1.24	183	0.5355
12/2/2009 - 12/10/2009	1.02	0	1.29	208	0.5433
12/1/2009 - 12/10/2009	1.12	0	1.29	231	0.5541
11/30/2009 - 12/10/2009	1.7	0	1.41	261	0.567
11/29/2009 - 12/10/2009	1.7	0	1.41	261	0.567
11/28/2009 - 12/10/2009	1.7	0	1.41	261	0.567
11/27/2009 - 12/10/2009	2.38	0	1.54	277	0.574
11/26/2009 - 12/10/2009	2.38	0	1.54	277	0.574
11/25/2009 - 12/10/2009	2.56	0	1.54	306	0.5784
11/24/2009 - 12/10/2009	2.83	0	1.55	330	0.5788
11/23/2009 - 12/10/2009	3.01	0	1.54	353	0.5666
11/22/2009 - 12/10/2009	3.01	0	1.54	353	0.5666
11/21/2009 - 12/10/2009	3.01	0	1.54	353	0.5666
11/20/2009 - 12/10/2009	3	0	1.53	363	0.5675

9.12 ISIL

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	1.62	1.34	0.28
Gross Profit	4.55	2.76	1.79
Gross Loss	-2.93	-1.42	-1.51
Profit Factor	1.55	1.94	1.19
Roll Over Credit	0	0	0
Open Position P/L	0.02	0	0.02
Select Total Net Profit	1.17	0.89	0.28
Select Gross Profit	3.91	2.12	1.79
Select Gross Loss	-2.74	-1.23	-1.51
Select Profit Factor	1.43	1.72	1.19
Adjusted Total Net Profit	0.59	0.56	-0.4
Adjusted Gross Profit	3.96	2.29	1.43
Adjusted Gross Loss	-3.37	-1.72	-1.83
Adjusted Profit Factor	1.17	1.33	0.78
Total Number of Trades	103	56	47
Percent Profitable	0.5728	0.6071	0.5319
Winning Trades	59	34	25
Losing Trades	44	22	22
Even Trades	0	0	0
Avg. Trade Net Profit	0.02	0.02	0.01
Avg. Winning Trade	0.08	0.08	0.07
Avg. Losing Trade	-0.07	-0.06	-0.07
Ratio Avg. Win:Avg. Loss	1.16	1.26	1.04
Largest Winning Trade	0.64	0.64	0.16
Largest Losing Trade	-0.19	-0.19	-0.15
Largest Winner as % of Gross Profit	0.1407	0.2319	0.0894
Largest Loser as % of Gross Loss	0.0648	0.1338	0.0993
Net Profit as % of Largest Loss	8.5263	7.0526	1.8667

Select Net Profit as % of Largest Loss	6.1579	4.6842	1.8667
Adjusted Net Profit as % of Largest Loss	3.0838	2.968	-2.6662

TradeStation Periodical Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
39437	0.05	0	1.06	22	0.3182
39436	0.2	0	1.25	26	0.5769
39435	0.56	0	1.84	26	0.6923
39434	0.69	0	2.68	24	0.6667
39433	0.14	0	1.67	10	0.7

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/21/2007 - 12/21/2007	0.05	0	1.06	22	0.3182
12/20/2007 - 12/21/2007	0.25	0	1.15	47	0.4468
12/19/2007 - 12/21/2007	0.81	0	1.35	72	0.5278
12/18/2007 - 12/21/2007	1.5	0	1.55	95	0.5684
12/17/2007 - 12/21/2007	1.64	0	1.56	104	0.5769

9.13 KLAC

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	1.41	1.38	0.03
Gross Profit	2.57	1.94	0.63
Gross Loss	-1.16	-0.56	-0.6
Profit Factor	2.22	3.46	1.05
Roll Over Credit	0	0	0
Open Position P/L	-0.19	-0.19	0
Select Total Net Profit	1.41	1.38	0.03
Select Gross Profit	2.57	1.94	0.63
Select Gross Loss	-1.16	-0.56	-0.6
Select Profit Factor	2.22	3.46	1.05
Adjusted Total Net Profit	0.13	0.3	-0.71
Adjusted Gross Profit	1.96	1.42	0.32
Adjusted Gross Loss	-1.83	-1.12	-1.02
Adjusted Profit Factor	1.07	1.27	0.31
Total Number of Trades	22	16	6
Percent Profitable	0.8182	0.875	0.6667
Winning Trades	18	14	4
Losing Trades	3	1	2
Even Trades	1	1	0
Avg. Trade Net Profit	0.06	0.09	0.01
Avg. Winning Trade	0.14	0.14	0.16
Avg. Losing Trade	-0.39	-0.56	-0.3
Ratio Avg. Win:Avg. Loss	0.37	0.25	0.53
Largest Winning Trade	0.34	0.34	0.22
Largest Losing Trade	-0.56	-0.56	-0.38
Largest Winner as % of Gross Profit	0.1323	0.1753	0.3492
Largest Loser as % of Gross Loss	0.4828	1	0.6333
Net Profit as % of Largest Loss	2.5179	2.4643	0.0789
Select Net Profit as % of Largest Loss	2.5179	2.4643	0.0789

Adjusted Net Profit as % of Largest Loss	0.2402	0.5384	-1.8665

TradeStation Periodical Returns:
Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
38884	-0.35	0	0.61	6	0.5
38883	1.43	0	18.88	12	0.9167
38882	0.51	0	2.34	7	0.7143
38881	-0.37	0	0	1	0

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
6/16/2006 - 6/16/2006	-0.35	0	0.61	6	0.5
6/15/2006 - 6/16/2006	1.08	0	2.11	17	0.8235
6/14/2006 - 6/16/2006	1.59	0	2.18	23	0.7826
6/13/2006 - 6/16/2006	1.22	0	1.9	23	0.7826

9.14 MAT

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	0.23	0.47	-0.24
Gross Profit	2.53	1.55	0.98
Gross Loss	-2.3	-1.08	-1.22
Profit Factor	1.1	1.44	0.8
Roll Over Credit	0	0	0
Open Position P/L	-0.02	-0.02	0
Select Total Net Profit	0.33	0.25	0.08
Select Gross Profit	2.31	1.33	0.98
Select Gross Loss	-1.98	-1.08	-0.9
Select Profit Factor	1.17	1.23	1.09
Adjusted Total Net Profit	-0.61	-0.16	-0.8
Adjusted Gross Profit	2.2	1.28	0.79
Adjusted Gross Loss	-2.81	-1.44	-1.59
Adjusted Profit Factor	0.78	0.89	0.5
Total Number of Trades	79	42	37
Percent Profitable	0.7468	0.7857	0.7027
Winning Trades	59	33	26
Losing Trades	20	9	11
Even Trades	0	0	0
Avg. Trade Net Profit	0	0.01	-0.01
Avg. Winning Trade	0.04	0.05	0.04
Avg. Losing Trade	-0.11	-0.12	-0.11
Ratio Avg. Win:Avg. Loss	0.37	0.39	0.34
Largest Winning Trade	0.22	0.22	0.06
Largest Losing Trade	-0.32	-0.22	-0.32
Largest Winner as % of Gross Profit	0.087	0.1419	0.0612
Largest Loser as % of Gross Loss	0.1391	0.2037	0.2623
Net Profit as % of Largest Loss	0.7188	2.1364	-0.75
Select Net Profit as % of Largest Loss	1.0313	1.1364	0.25

Adjusted Net Profit as % of Largest Loss	-1.9177	-0.7265	-2.5001

TradeStation Periodical Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
40155	-0.1	0	0.77	12	0.5
40154	0.06	0	1.24	10	0.7
40153	0	0	0	1	0
40152	0	0	0	1	0
40151	-0.11	0	0.84	20	0.7
40150	-0.14	0	0.67	11	0.7273
40149	-0.12	0	0.76	15	0.6667
40148	0.63	0	13.6	14	0.8571
40147	-0.01	0	0.88	4	0.75

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/8/2009 - 12/8/2009	-0.1	0	0.77	12	0.5
12/7/2009 - 12/8/2009	-0.04	0	0.94	21	0.619
12/6/2009 - 12/8/2009	-0.04	0	0.94	21	0.619
12/5/2009 - 12/8/2009	-0.04	0	0.94	21	0.619
12/4/2009 - 12/8/2009	-0.15	0	0.89	40	0.675
12/3/2009 - 12/8/2009	-0.29	0	0.84	50	0.68
12/2/2009 - 12/8/2009	-0.41	0	0.82	64	0.6875
12/1/2009 - 12/8/2009	0.22	0	1.09	77	0.7273
11/30/2009 - 12/8/2009	0.21	0	1.09	80	0.7375

9.15 RL

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	4.73	4.27	0.46
Gross Profit	12.64	7.55	5.09
Gross Loss	-7.91	-3.28	-4.63
Profit Factor	1.6	2.3	1.1
Roll Over Credit	0	0	0
Open Position P/L	0.2	0.2	0
Select Total Net Profit	6.79	4.28	2.51
Select Gross Profit	11.64	6.55	5.09
Select Gross Loss	-4.85	-2.27	-2.58
Select Profit Factor	2.4	2.89	1.97
Adjusted Total Net Profit	2.49	2.65	-1.07
Adjusted Gross Profit	11.28	6.45	4.27
Adjusted Gross Loss	-8.78	-3.8	-5.34
Adjusted Profit Factor	1.28	1.7	0.8
Total Number of Trades	172	90	82
Percent Profitable	0.5	0.5222	0.4756
Winning Trades	86	47	39
Losing Trades	82	40	42
Even Trades	4	3	1
Avg. Trade Net Profit	0.03	0.05	0.01
Avg. Winning Trade	0.15	0.16	0.13
Avg. Losing Trade	-0.1	-0.08	-0.11
Ratio Avg. Win:Avg. Loss	1.52	1.96	1.18
Largest Winning Trade	1	1	0.49
Largest Losing Trade	-1.33	-1.01	-1.33
Largest Winner as % of Gross Profit	0.0791	0.1325	0.0963
Largest Loser as % of Gross Loss	0.1681	0.3079	0.2873
Net Profit as % of Largest Loss	3.5564	4.2277	0.3459
Select Net Profit as % of Largest Loss	5.1053	4.2376	1.8872

Adjusted Net Profit as % of Largest Loss	1.8748	2.6239	-0.8041

TradeStation Periodical Returns:
Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
38884	0.94	0	1.22	47	0.4681
38883	1.77	0	2.34	53	0.5094
38882	1.33	0	1.74	54	0.463
38881	0.89	0	2.44	22	0.6364

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
6/16/2006 - 6/16/2006	0.94	0	1.22	47	0.4681
6/15/2006 - 6/16/2006	2.71	0	1.49	99	0.4949
6/14/2006 - 6/16/2006	4.04	0	1.55	152	0.4868
6/13/2006 - 6/16/2006	4.93	0	1.62	173	0.5029

9.16 UNH

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	3.14	2.77	0.37
Gross Profit	5.32	4.11	1.21
Gross Loss	-2.18	-1.34	-0.84
Profit Factor	2.44	3.07	1.44
Roll Over Credit	0	0	0
Open Position P/L	-0.24	-0.24	0
Select Total Net Profit	2.03	1.66	0.37
Select Gross Profit	4.21	3	1.21
Select Gross Loss	-2.18	-1.34	-0.84
Select Profit Factor	1.93	2.24	1.44
Adjusted Total Net Profit	1.6	1.42	-0.4
Adjusted Gross Profit	4.55	3.36	0.92
Adjusted Gross Loss	-2.95	-1.94	-1.32
Adjusted Profit Factor	1.54	1.73	0.7
Total Number of Trades	56	35	21
Percent Profitable	0.8571	0.8571	0.8571
Winning Trades	48	30	18
Losing Trades	8	5	3
Even Trades	0	0	0
Avg. Trade Net Profit	0.06	0.08	0.02
Avg. Winning Trade	0.11	0.14	0.07
Avg. Losing Trade	-0.27	-0.27	-0.28
Ratio Avg. Win:Avg. Loss	0.41	0.51	0.24
Largest Winning Trade	0.66	0.66	0.09
Largest Losing Trade	-0.59	-0.59	-0.32
Largest Winner as % of Gross Profit	0.1241	0.1606	0.0744
Largest Loser as % of Gross Loss	0.2706	0.4403	0.381
Net Profit as % of Largest Loss	5.322	4.6949	1.1563
Select Net Profit as % of Largest Loss	3.4407	2.8136	1.1563

Adjusted Net Profit as % of Largest Loss	2.7142	2.4074	-1.2505

TradeStation Periodical Returns:
Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
40157	1.45	0	5.14	20	0.9
40156	0.88	0	1.95	14	0.7857
40155	0.08	0	1.11	12	0.75
40154	0.44	0	1.98	12	0.6667
40153	0	0	0	1	0
40152	0	0	0	1	0
40151	0.05	0	1.5	3	0.6667

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/10/2009 - 12/10/2009	1.45	0	5.14	20	0.9
12/9/2009 - 12/10/2009	2.33	0	2.85	33	0.8788
12/8/2009 - 12/10/2009	2.41	0	2.26	44	0.8636
12/7/2009 - 12/10/2009	2.85	0	2.23	55	0.8364
12/6/2009 - 12/10/2009	2.85	0	2.23	55	0.8364
12/5/2009 - 12/10/2009	2.85	0	2.23	55	0.8364
12/4/2009 - 12/10/2009	2.9	0	2.2	57	0.8421

9.17 VRTX

TradeStation Performance Summary

	All Trades	Long Trades	Short Trades
Total Net Profit	0.25	-0.11	0.36
Gross Profit	7.91	4.1	3.81
Gross Loss	-7.66	-4.21	-3.45
Profit Factor	1.03	0.97	1.1
Roll Over Credit	0	0	0
Open Position P/L	0.04	0.04	0
Select Total Net Profit	0.2	-0.4	0.6
Select Gross Profit	7.3	3.49	3.81
Select Gross Loss	-7.1	-3.89	-3.21
Select Profit Factor	1.03	0.9	1.19
Adjusted Total Net Profit	-1.38	-1.34	-0.72
Adjusted Gross Profit	7.07	3.47	3.24
Adjusted Gross Loss	-8.45	-4.82	-3.96
Adjusted Profit Factor	0.84	0.72	0.82
Total Number of Trades	184	91	93
Percent Profitable	0.4783	0.4725	0.4839
Winning Trades	88	43	45
Losing Trades	94	48	46
Even Trades	2	0	2
Avg. Trade Net Profit	0	0	0
Avg. Winning Trade	0.09	0.1	0.08
Avg. Losing Trade	-0.08	-0.09	-0.08
Ratio Avg. Win:Avg. Loss	1.1	1.09	1.13
Largest Winning Trade	0.61	0.61	0.15
Largest Losing Trade	-0.32	-0.32	-0.24
Largest Winner as % of Gross Profit	0.0771	0.1488	0.0394
Largest Loser as % of Gross Loss	0.0418	0.076	0.0696
Net Profit as % of Largest Loss	0.7812	-0.3438	1.5
Select Net Profit as % of Largest Loss	0.625	-1.25	2.5

Adjusted Net Profit as % of Largest Loss	-4.3227	-4.1966	-2.986

TradeStation Periodical Returns: Daily

Mark-To-Market Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
39437	1.55	0	2.38	36	0.6667
39436	0	0	1	37	0.4865
39435	0.4	0	1.43	31	0.5161
39434	-0.57	0	0.68	34	0.4118
39433	-0.68	0	0.6	34	0.3529
39432	0	0	0	1	0
39431	0	0	0	1	0
39430	-0.41	0	0.48	17	0.4118

Mark-To-Market Rolling Period Analysis:

Period	Net Profit	% Gain	Profit Factor	# Trades	% Profitable
12/21/2007 - 12/21/2007	1.55	0	2.38	36	0.6667
12/20/2007 - 12/21/2007	1.55	0	1.6	72	0.5833
12/19/2007 - 12/21/2007	1.95	0	1.56	102	0.5686
12/18/2007 - 12/21/2007	1.38	0	1.26	136	0.5294
12/17/2007 - 12/21/2007	0.7	0	1.1	169	0.4911
12/16/2007 - 12/21/2007	0.7	0	1.1	169	0.4911
12/15/2007 - 12/21/2007	0.7	0	1.1	169	0.4911
12/14/2007 - 12/21/2007	0.29	0	1.04	185	0.4811